## SUPPLEMENTARY MATERIAL

## Supplement A: Definition of the datasets/stages

Table S1: The different populations compared in the analyses.

| Population | NDH <br> population <br> in surveys | NDH <br> population in healthcare records | NDH population offered the DPP | NDH population having an Initial Assessment at the DPP | NDH <br> population <br> who <br> completed <br> Initial <br> Assessment <br> and <br> completed 8 <br> DPP <br> interventions <br> sessions. | NDH population in <br> who completed <br> Initial Assessment <br> and completed 11  <br> DPP interventions  <br> sessions.  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Data source | UKHLS; HSE | NDA | NDA | MDS | MDS | MDS |
| NDH <br> definition | Defined as NDH if HbA1c blood levels between 42$47 \mathrm{mmol} / \mathrm{mol}$ or $6.0-6.4 \%$ inclusive | A Read code indicating NDH diagnosis entered in primary care electronic health records. HbA1c within the range $\quad 42-$ $47 \mathrm{mmol} / \mathrm{mol}$ inclusive | A Read code entered in primary care electronic healthcare records indicating the DPP intervention has been offered. HbA1c within the range $\quad 42-$ $47 m m o l / m o l$ inclusive | Participants referred by primary care to the DPP provider based on an HbA1c within the range 42$47 \mathrm{mmol} / \mathrm{mol}$ inclusive. | Participants referred by primary care to the DPP provider based on an HbA1c within the range 42$47 \mathrm{mmol} / \mathrm{mol}$ inclusive. | Participants referred by primary care to the DPP provider based on an HbA1c within the range 42$47 \mathrm{mmol} / \mathrm{mol}$ inclusive. |
| Time period | $\begin{aligned} & \hline \text { UKHLS: } \\ & \text { 2010-12 } \\ & \text { HSE: 2015- } \\ & 2018 \end{aligned}$ | Jan 2017 to Dec 2019 | April 2018  <br> to March <br> 2019  | April 2018  <br> to March <br> 2019  | April 2018 to March 2019 | April 2018 to March 2019 |
| Sample size <br> (N) | $\begin{aligned} & \text { UKHLS: } \\ & 794 \\ & \text { HSE: 1,383 } \end{aligned}$ | 1,109,930 | 157,420 | 98,024 | 29,577 | 19,916 |

## UK Household Longitudinal Study

The UK Household Longitudinal Study (UKHLS) is an annual longitudinal survey of over UK 40,000 households. A stratified clustered random sample of households, consisting of the General Populations Sample (GPS) representative of the UK population and a small subsample of the British Household Panel Survey (BHPS). Sociodemographic characteristics were collected at annual interviews and adult participants in waves 2 and 3 (2010-2012) had an additional nurse visit and gave a blood sample. A biomarker collection for all eligible participants was completed in two waves (2\&3). In total, approximately 56,198 men and women over 16 years of age participated in the main interview in waves 2 and 3 of UKHLS, of those $12,162(22 \%)$ had HbA1c measurement. In this study, only participants living in England were included in the analytical sample as the NHS DPP focuses on the English population. Therefore, 10,065 participants residing in England with HbA1c measurement were included in the analytical sample. Less than $1 \%$ of the participants had missing values in disability, ethnicity, and employment data. Our analytical sample comprised of 9,987 participants, out of these 8,648 ( $86 \%$ ) had normal levels of HbA1c, 794 (8\%) had NDH, and $545(6 \%)$ had diabetes. To compensate for the loss of information on blood sample data due to various reasons (i.e., no consent, inability to give blood sample etc), missing data were considered missing at random and thus, non-response blood weights were applied to the analyses. More information on how non-response blood weights were structured can be found in the Understanding Society user guide. [1]

## Health Survey for England

The Health Survey for England (HSE) is commissioned by the NHS Information Centre for Health and Social Care for the Department of Health. Since 1994, this annual, cross-sectional survey has been carried out in collaboration with the Health and Social Survey Research group at the Department of Epidemiology at University College London. Data collections occur throughout the year. The first stage of data collections includes information on health and health related behaviours in individuals surveyed using visit from a trained interviewer. The second stage includes a nurse visit with further collection of physical measurements and biological samples. All adults (age 16 or over) in the household are eligible for interview, nurse visit and biological sampling. A random probability sample of households (addresses and postcodes) is surveyed every year. We used data between 2015 and 2018. In total, 32,220 (aged $16+$ ) had a main interview, $25,160(78.1 \%)$ completed a nurse visit and 15,453 ( $61.4 \%$ ) gave a blood sample. Of those participants who gave blood sample, 14,873 (96.2\%) had a HbA1c
measurement. The analytical sample comprised of 1,387 participants whose HbA 1 c levels were within the range 6.0-6.4\% inclusive indicating NDH. After excluding participants with missing information on sociodemographic characteristics the final analytical sample was $1,383 \mathrm{NDH}$ participants. Similar approach to UKHLS data was followed to compensate for missing data. Blood weights were applied to the statistical analyses.

## National Diabetes Audit

The National Diabetes Audit (NDA) is part of the National Clinical Audit Programme commissioned by the Healthcare Quality Improvement Partnership and funded by NHS England. The NDA is delivered by NHS Digital partnership with Diabetes UK and is supported by Public Health England. The NDA was established in 2004 to monitor disease management and outcome. Since 2017 all GPs are required to submit patients' data to the NDA. Once an NDH diagnosis had been confirmed, primary care staff would add a Read code to a patient's healthcare record indicating NDH diagnosis. If the DPP intervention is offered, a second Read code indicating the DPP programme had been offered would be added into the healthcare record. Since, January 2017, an NDH module containing healthcare records from patients with an NDH diagnosis code, form part of the National Diabetes Audit (NDA) extraction. We used NDA data from the period between January 2017 until December 2019 and we restricted the analysis only for DPP offered participants. In total, 2,043,010 had at least an HbA1c measurement and $1,529,665$ participants had at least an HbA1c measurement. We kept the NDH measurement from the earliest calendar date. After including only those who were DPP offered between April 2018 - March 2019 and excluding 541 ( $0.04 \%$ ) participants with missing information in the Index of Multiple Deprivation, our analytical sample comprised of $1,267,350$ NDH participants. Out of these, 157,420 were offered to take part in the DPP between April 2018 - March 2019. Therefore, we have created two groups for the NDA data 1) for those who were NDH diagnosed from primary records (NDA) between January 2017 until December 2019 and 2) for those who received a DPP offer between April 2018 until March 2019.

## Minimum Data Set

The NHS DPP providers are commissioned to deliver dietary and physical activity behavioural interventions. Four service providers were selected to implement the first service specification of the NHS DPP intervention: Reed Momenta (London, UK), ICS Health and Well-being (Leeds, UK), Ingeus UK (London, UK), and Living Well Taking Control (Birmingham, UK).

Each service provider structures the intervention according to the service specification provided by NHS England. Programme across providers follow a similar structure, including an initial assessment and a minimum of 13 core and maintenance sessions. Individuals identified as having NDH are offered the intervention by their GP, if the offer is accepted, they are referred to participate in the interventions. All service providers were required to collect a minimum data set from the initial assessment and sessions which included demographics and clinical information. To date, NHS England is commissioning delivery of its third service specification, which includes different modes of digital delivery in addition to a group, face to face mode.

## Supplement B: Tables and graph from the analyses

|  | UK Household Longitudinal Study |  | Health Survey for England |  | National Diabetes Audit |  | National Diabetes Audit |  | Minimum Data Set |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | General Population |  |  |  | Diabetes Prevention <br> Programme identified |  | Diabetes Prevention Programme offered |  | Diabetes Prevention Programme attended |  | Diabetes Prevention Programme completed |  |  |  |
|  | Non-Diabetic Hyperglycaemia Sample (794) |  | Non-Diabetic Hyperglycaemia Sample (1,383) |  | Non-Diabetic Hyperglycaemia Sample (1,109,930) |  | Non-Diabetic Hyperglycaemia Sample $(157,420)$ |  | Non-Diabetic Hyperglycaemia sample $(\mathbf{9 8}, 024)$ |  | Non-Diabetic Hyperglycaemia sample $(29,577)$ |  | Non-Diabetic Hyperglycaemia sample (19,916) |  |
|  |  |  |  |  |  |  |  |  | Initial | ssment | 8 sessio |  | 11 sessi |  |
|  | N | \% | N | \% | N | \% | N | \% | N | \% | N | \% | N | \% |
| Age categories |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <40 | 27 | 6.1 | 68 | 7.5 | 52,770 | 4.8 | 10,820 | 6.9 | 4,408 | 4.5 | 589 | 2.0 | 304 | 1.5 |
| 40-49 | 58 | 9.3 | 128 | 12.0 | 112,515 | 10.1 | 20,920 | 13.3 | 9,476 | 9.7 | 1,673 | 5.7 | 987 | 5.1 |
| 50-59 | 162 | 21.4 | 248 | 19.2 | 222,780 | 20.1 | 35,710 | 22.7 | 19,312 | 19.7 | 4,763 | 16.1 | 3,035 | 15.2 |
| 60-69 | 242 | 26.3 | 405 | 25.6 | 277,300 | 25.0 | 39,490 | 25.1 | 27,836 | 28.4 | 9,663 | 32.7 | 6,652 | 33.4 |
| 70-79 | 202 | 22.0 | 354 | 22.7 | 278,395 | 25.1 | 35,060 | 22.3 | 27,739 | 28.3 | 10,311 | 34.8 | 7,197 | 36.1 |
| 80+ | 103 | 14.9 | 180 | 13.0 | 166,175 | 15.0 | 15,430 | 9.8 | 9,253 | 9.4 | 2,578 | 8.7 | 1,741 | 8.7 |
| Sex |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Male | 377 | 44.9 | 636 | 47.8 | 532,300 | 48.0 | 74,725 | 47.5 | 44,237 | 45.1 | 13,476 | 45.6 | 9,063 | 45.5 |
| Female | 417 | 55.1 | 747 | 52.2 | 577,630 | 52.0 | 82,700 | 52.5 | 53,787 | 54.9 | 16,101 | 54.4 | 10,853 | 54.5 |
| Limiting illness or Disability |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| No | 263 | 35.0 | 545 | 39.4 | 1,104,070 | 99.5 | 156,715 | 99.6 | 82,067 | 83.7 | 25,430 | 86.0 | 17,424 | 87.5 |
| Yes | 531 | 65.0 | 838 | 60.6 | 5,860 | 0.5 | 710 | 0.4 | 15,957 | 16.3 | 4,147 | 14.0 | 2,492 | 12.5 |
| Ethnicity |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| White-British | 744 | 89.8 | 1,225 | 85.7 | 747,470 | 67.3 | 96,965 | 61.4 | 76,420 | 78.0 | 24,637 | 83.3 | 16,889 | 84.9 |
| Ethnic minorities | 50 | 10.2 | 158 | 14.3 | 362,465 | 32.7 | 60,460 | 38.4 | 21,604 | 22.0 | 4,940 | 16.7 | 3,017 | 15.1 |
| Index of Multiple Deprivation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Least deprived | 144 | 15.8 | 281 | 19.3 | 198,440 | 17.9 | 25,920 | 16.5 | 22,467 | 22.9 | 7,444 | 25.1 | 4,905 | 24.6 |


| 4th quintile | 164 | 18.5 | 302 | 20.9 | 214,120 | 19.3 | 28,360 | 18.0 | 20,039 | 20.4 | 6,577 | 22.2 | 4,686 | 23.5 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 3rd quintile | 165 | 20.2 | 290 | 20.8 | 225,945 | 20.3 | 32,010 | 20.3 | 19,147 | 19.6 | 6,173 | 21.0 | 4,300 | 21.6 |
| 2nd quintile | 151 | 20.8 | 274 | 20.9 | 222,280 | 20.0 | 35,330 | 22.4 | 18,356 | 18.7 | 5,260 | 17.8 | 3,523 | 17.7 |
| Most deprived | 170 | 24.7 | 236 | 18.2 | 249,145 | 22.4 | 35,805 | 22.7 | 18,015 | 18.4 | 4,123 | 13.9 | 2,502 | 12.6 |
| Total | 794 | 100.0 | 1,383 | 100.0 | $1,109,930$ | 100.0 | 157,420 | 100.0 | 98,024 | 100.0 | 29,577 | 100.0 | 19,916 | 100.0 |

Notes: N(unweighted) but \% (survey non-response weighted). Summary statistics for NDA data have been rounded to 5 .
Difference in total the NDA data occur due to rounding of the data in adherence with data sharing agreement requirements from the data provided.

Table S3: Multivariable analysis of the general population (UKHLS and HSE) and DPP stages and age groups

|  | Age categories (ref <40) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 40-49 | 50-59 | 60-69 | 70-79 | 80+ |
| Datasets | OR (95\%CIs) |  |  |  |  |
| UKHLS | 1(ref) | 1(ref) | 1(ref) | 1(ref) | 1(ref) |
| HSE | 1.01(0.53-1.95) | 0.69(0.39-1.24) | 0.74(0.42-1.31) | 0.77(0.43-1.38) | 0.66(0.36-1.20) |
| DPP identified | 1.11(0.63-1.96) | 1.10(0.67-1.83) | 1.12(0.68-1.83) | 1.52(0.92-2.51) | 1.60(0.95-2.69) |
| DPP offered | 1.03(0.58-1.83) | 0.91(0.55-1.52) | 0.84(0.51-1.38) | 1.02(0.62-1.68) | 0.78(0.47-1.32) |
| DPP attended | 1.19(0.67-2.10) | 1.11(0.67-1.84) | 1.25(0.76-2.04) | 1.56(0.95-2.57) | 0.87(0.52-1.46) |
| DPP completed_8 sessions | 1.51(0.85-2.69) | 1.89(1.14-3.15) | 2.89(1.75-4.77) | 3.83(2.32-6.34) | 1.61(0.96-2.72) |
| DPP <br> completed_11 <br> sessions | 1.68(0.94-3.01) | 2.23(1.33-3.73) | 3.63(2.19-6.03) | 4.87(2.92-8.12) | $2.00(1.17-3.39)$ |
| Sex |  |  |  |  |  |
| Male | 1(ref) | 1(ref) | 1(ref) | 1(ref) | 1(ref) |
| Female | 0.75(0.73-0.76) | 0.84(0.83-0.86) | 0.84(0.83-0.86) | 0.96(0.94-0.97) | 1.20(1.18-1.22) |
| Limiting illness or Disability |  |  |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) | 1(ref) | 1(ref) |
| Yes | 0.59(0.54-0.63) | 0.57(0.53-0.61) | 0.49(0.46-0.52) | 0.56(0.53-0.60) | 0.75(0.70-0.80) |
| Ethnicity |  |  |  |  |  |
| White-British | 1(ref) | 1(ref) | 1(ref) | 1(ref) | 1(ref) |
| Ethnic minorities | 0.64(0.63-0.65) | 0.34(0.33-0.34) | 0.22(0.22-0.23) | 0.17(0.17-0.18) | 0.20(0.19-0.20) |
| Index of Multiple Deprivation |  |  |  |  |  |
| Least deprived | 1(ref) | 1(ref) | 1(ref) | 1(ref) | 1(ref) |
| 4th quintile | 0.84(0.80-0.87) | 0.78(0.75-0.81) | 0.73(0.71-0.76) | 0.68(0.65-0.70) | 0.64(0.61-0.66) |
| 3rd quintile | 0.74(0.71-0.77) | 0.62(0.60-0.64) | 0.53(0.52-0.55) | 0.45(0.44-0.47) | 0.42(0.40-0.43) |
| 2nd quintile | 0.67(0.65-0.70) | 0.47(0.45-0.48) | 0.34(0.33-0.36) | 0.25(0.24-0.26) | 0.23(0.22-0.23) |
| Most deprived | 0.60(0.58-0.62) | 0.37(0.35-0.38) | 0.23(0.22-0.24) | 0.15(0.14-0.15) | 0.13(0.12-0.13) |
| Constant | 4.16(2.35-7.38) | 13.89(8.37-23.03) | $\begin{gathered} \hline 24.21(14.74- \\ 39.77) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 21.60(13.10- \\ 35.63) \\ \hline \end{gathered}$ | $\begin{gathered} 11.32(6.74- \\ 19.01) \\ \hline \end{gathered}$ |

Notes: Odds-ratios and $95 \%$ CIs from a multinomial logistic regression model. Age regressed on dataset identifier adjusted for socio demographic characteristics. Survey observations are weighted using UKHLS and HSE survey blood weights accounting for selection probabilities, attrition, and non-response.

Table S4: Predicted probabilities and $95 \%$ CIs of the general population (UKHLS and HSE) and various DPP stages for age groups (illustrated in Figure 1).

|  | <40 |  |  | 40-49 |  |  | 50-59 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Predicted Pr | 95\%CIs |  | Predicted Pr | 95\% CIs |  | Predicted Pr | 95\% CIs |  |
| UKHLS | 4\% | 2.4\% | 6.5\% | 10\% | 7.3\% | 13.2\% | 23\% | 20.0\% | 26.9\% |
| HSE | 6\% | 3.5\% | 7.4\% | 14\% | 11.2\% | 16.0\% | 21\% | 18.7\% | 23.7\% |
| DPP identified | 4\% | 3.5\% | 3.6\% | 9\% | 9.0\% | 9.1\% | 21\% | 20.6\% | 20.8\% |
| DPP offered | 5\% | 4.8\% | 5.0\% | 12\% | 11.4\% | 11.7\% | 23\% | 23.2\% | 23.7\% |
| DPP attended | 4\% | 3.5\% | 3.8\% | 10\% | 9.8\% | 10.2\% | 21\% | 21.1\% | 21.7\% |
| DPP completed_8 sessions | 2\% | 1.8\% | 2.2\% | 6\% | 6.0\% | 6.6\% | 18\% | 17.4\% | 18.4\% |
| DPP completed_11 sessions | 1\% | 0.8\% | 1.2\% | 6\% | 5.3\% | 6.0\% | 17\% | 16.6\% | 17.7\% |
|  | 60-69 |  |  | 70-79 |  |  | 80+ |  |  |
|  | $\begin{gathered} \hline \text { Predicted } \\ \text { Pr } \\ \hline \end{gathered}$ | 95\%CIs |  | $\begin{gathered} \hline \text { Predicted } \\ \text { Pr } \\ \hline \end{gathered}$ | 95\% CIs |  | $\begin{gathered} \hline \text { Predicted } \\ \text { Pr } \\ \hline \end{gathered}$ | 95\% CIs |  |
| UKHLS | 29\% | 25.7\% | 32.6\% | 21\% | 18.0\% | 23.8\% | 12\% | 9.5\% | 14.2\% |
| HSE | 28\% | 25.6\% | 30.7\% | 21\% | 18.9\% | 23.2\% | 10\% | 8.6\% | 11.7\% |
| DPP identified | 26\% | 26.0\% | 26.2\% | 25\% | 25.4\% | 25.5\% | 15\% | 14.9\% | 15.1\% |
| DPP offered | 27\% | 26.5\% | 26.9\% | 23\% | 23.0\% | 23.4\% | 10\% | 10.0\% | 10.3\% |
| DPP attended | 30\% | 29.5\% | 30.1\% | 27\% | 26.4\% | 27.0\% | 8\% | 8.3\% | 8.6\% |
| DPP completed_8 sessions | 34\% | 33.5\% | 34.6\% | 32\% | 31.8\% | 32.8\% | 8\% | 7.8\% | 8.2\% |
| DPP completed_11 sessions | 35\% | 34.0\% | 35.4\% | 33\% | 32.7\% | 34.0\% | 8\% | 7.4\% | 8.1\% |

Table S5: Multivariable analysis of general population (UKHLS and HSE) and DPP stages and sex.


Notes: Odds-ratios and $95 \%$ CIs from a logistic regression model. Sex regressed on dataset identifier adjusted for socio demographic characteristics. Survey observations are weighted using UKHLS and HSE survey blood weights accounting for selection probabilities, attrition, and non-response.

Table S6: Predicted probabilities and $95 \%$ CIs of the general population (UKHLS and HSE) and various DPP stages for sex (illustrated in Figure S1).

|  | Male |  |  | Female |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Predicted Pr | $\mathbf{9 5 \%}$ CIs |  | Predicted Pr | $\mathbf{9 5 \% C I s}$ |  |
| UKHLS | $45 \%$ | $40.8 \%$ | $48.7 \%$ | $55 \%$ | $51.3 \%$ | $59.2 \%$ |
| HSE | $47 \%$ | $44.4 \%$ | $50.1 \%$ | $53 \%$ | $49.9 \%$ | $55.6 \%$ |
| DPP identified | $48 \%$ | $48.0 \%$ | $48.2 \%$ | $52 \%$ | $51.8 \%$ | $52.0 \%$ |
| DPP offered | $47 \%$ | $46.8 \%$ | $47.3 \%$ | $53 \%$ | $52.7 \%$ | $53.2 \%$ |
| DPP attended | $45 \%$ | $44.3 \%$ | $44.9 \%$ | $55 \%$ | $55.1 \%$ | $55.7 \%$ |
| DPP completed_8 <br> sessions | $45 \%$ | $44.5 \%$ | $45.6 \%$ | $55 \%$ | $54.4 \%$ | $55.5 \%$ |
| DPP completed_11 <br> sessions | $45 \%$ | $44.3 \%$ | $45.7 \%$ | $55 \%$ | $54.3 \%$ | $55.7 \%$ |

Table S7: Multivariable analysis of general population (UKHLS and HSE) and DPP stages and limiting illness or disability.

|  | Limiting illness or Disability (ref no) OR (95\% CIs) |
| :---: | :---: |
| Datasets |  |
| UKHLS | 1(ref) |
| HSE | 0.89(0.72-1.10) |
| DPP identified | 0.003(0.003-0.004) |
| DPP offered | 0.003(0.002-0.003) |
| DPP attended | 0.12(0.10-0.14) |
| DPP completed_8 sessions | 0.10(0.08-0.12) |
| DPP completed_11 sessions | 0.09(0.07-0.11) |
| Age categories |  |
| <40 | 1(ref) |
| 40-49 | 0.58 (0.54-0.63) |
| 50-59 | 0.54(0.50-0.57) |
| 60-69 | 0.44(0.41-0.47) |
| 70-79 | 0.49 (0.46-0.53) |
| 80+ | 0.65(0.60-0.70) |
| Sex |  |
| Male | 1(ref) |
| Female | 0.99(0.97-1.02) |
| Ethnicity |  |
| White-British | 1(ref) |
| Ethnic minorities | 0.40(0.38-0.42) |
| Index of Multiple Deprivation |  |
| Least deprived | 1(ref) |
| 4th quintile | 1.18(1.13-1.23) |
| 3rd quintile | 1.32(1.26-1.37) |
| 2nd quintile | 1.67(1.60-1.74) |
| Most deprived | 2.19(2.11-2.28) |
|  |  |
| Constant | 2.64(2.18-3.20) |

Notes: Odds-ratios and $95 \%$ CIs from a logistic regression model. Limiting illness or disability regressed on dataset identifier adjusted for socio demographic characteristics. Survey observations are weighted using UKHLS and HSE survey blood weights accounting for selection probabilities, attrition, and non-response. Comparable disability measures are not available in the NDA and DPP offered datasets so these estimates should be interpreted with caution.

Table S8: Predicted probabilities and $\mathbf{9 5 \%}$ CIs of the general population (UKHLS and HSE) and various DPP stages for limiting illness or disability (illustrated in Figure 2)

|  | No limiting illness or disability |  |  | Limiting illness or disability |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Predicted Pr | $95 \%$ CIs |  | Predicted Pr |  | $95 \%$ CIs |  |
| UKHLS | $40 \%$ | $35.8 \%$ | $44.2 \%$ | $60 \%$ | $53.8 \%$ | $64.2 \%$ |  |
| HSE | $43 \%$ | $39.8 \%$ | $45.8 \%$ | $57 \%$ | $54.2 \%$ | $60.2 \%$ |  |
| DPP identified* |  |  |  |  |  |  |  |
| DPP offered* |  |  |  |  |  |  |  |
| DPP attended | $85 \%$ | $84.7 \%$ | $85.2 \%$ | $15 \%$ | $14.8 \%$ | $15.2 \%$ |  |
| DPP completed_8 <br> sessions | $87 \%$ | $86.4 \%$ | $87.2 \%$ | $13 \%$ | $12.6 \%$ | $13.4 \%$ |  |
| DPP completed_11 <br> sessions | $88 \%$ | $87.8 \%$ | $88.7 \%$ | $12 \%$ | $11.6 \%$ | $12.4 \%$ |  |

[^0]Table S9: Multivariable analysis of general population (UKHLS and HSE) and DPP stages and ethnicity

|  | Ethnicity (ref White-British) OR (95\% CIs) |
| :---: | :---: |
| Datasets |  |
| UKHLS | 1(ref) |
| HSE | 1.40(0.96-2.04) |
| DPP identified | 3.17(2.29-4.41) |
| DPP offered | 3.74(2.69-5.19) |
| DPP attended | 2.02(1.45-2.80) |
| DPP completed_8 sessions | 1.61(1.16-2.23) |
| DPP completed_11 sessions | 1.46(1.05-2.03) |
| Age categories |  |
| <40 | 1(ref) |
| 40-49 | 0.64(0.63-0.65) |
| 50-59 | 0.34(0.33-0.34) |
| 60-69 | 0.22(0.22-0.23) |
| 70-79 | 0.17(0.17-0.18) |
| 80+ | 0.20(0.19-0.20) |
| Sex |  |
| Male | 1(ref) |
| Female | 1.00(0.99-1.01) |
| Limiting illness or Disability |  |
| No | 1(ref) |
| Yes | 0.46(0.44-0.47) |
| Index of Multiple Deprivation |  |
| Least deprived | 1(ref) |
| 4th quintile | 0.96(0.95-0.97) |
| 3rd quintile | 1.11(1.10-1.12) |
| 2nd quintile | 1.33(1.32-1.35) |
| Most deprived | 1.24(1.22-1.25) |
|  |  |
| Constant | 0.49(0.36-0.69) |

Notes: Odds-ratios and $95 \%$ CIs from a logistic regression model. Ethnicity regressed on dataset identifier adjusted for socio demographic characteristics. Survey observations are weighted using UKHLS and HSE survey blood weights accounting for selection probabilities, attrition, and non-response.

Table S10: Predicted probabilities and $95 \%$ CIs of the general population (UKHLS and HSE) and various DPP stages for ethnicity (illustrated in Figure 3)

|  | White-British |  | Ethnic minorities |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Predicted Pr | 95\%CIs |  | Predicted Pr |  | 95\%CIs |  |
| UKHLS | $87 \%$ | $83.6 \%$ | $90.9 \%$ | $13 \%$ | $9.1 \%$ | $16.7 \%$ |  |
| HSE | $83 \%$ | $80.5 \%$ | $85.6 \%$ | $17 \%$ | $14.4 \%$ | $19.5 \%$ |  |
| DPP identified | $68 \%$ | $68.2 \%$ | $68.4 \%$ | $32 \%$ | $31.6 \%$ | $31.8 \%$ |  |
| DPP offered | $65 \%$ | $64.4 \%$ | $64.9 \%$ | $35 \%$ | $35.1 \%$ | $35.6 \%$ |  |
| DPP attended | $77 \%$ | $77.0 \%$ | $77.5 \%$ | $23 \%$ | $22.5 \%$ | $23.0 \%$ |  |
| DPP <br> completed_8 <br> sessions | $81 \%$ | $80.5 \%$ | $81.5 \%$ | $19 \%$ | $18.5 \%$ | $19.5 \%$ |  |
| DPP <br> completed_11 <br> sessions | $82 \%$ | $81.9 \%$ | $83.0 \%$ | $18 \%$ | $17.0 \%$ | $18.1 \%$ |  |

Table S11: Multivariable analysis of general population (UKHLS and HSE) and DPP stages and IMD

|  | Index of Multiple Deprivation (ref least deprived) <br> OR (95\% CIs) |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Datasets | Fourth quintile | Third quintile | Second quintile | Most deprived |
| UKHLS | 1 (ref) | 1 (ref) | $1($ ref $)$ | 1 (ref) |
| HSE | $0.92(0.68-1.25)$ | $0.83(0.61-1.13)$ | $0.79(0.57-1.08)$ | $0.58(0.42-0.79)$ |
| DPP identified | $1.03(0.81-1.32)$ | $1.03(0.80-1.33)$ | $1.09(0.84-1.41)$ | $1.22(0.94-1.58)$ |
| DPP offered | $1.03(0.80-1.32)$ | $1.07(0.83-1.38)$ | $1.21(0.93-1.57)$ | $1.19(0.92-1.53)$ |
| DPP attended | $0.82(0.64-1.06)$ | $0.74(0.58-0.96)$ | $0.74(0.57-0.96)$ | $0.69(0.54-0.89)$ |
| DPP <br> completed_8 <br> sessions | $0.83(0.64-1.06)$ | $0.75(0.58-0.97)$ | $0.71(0.54-0.92)$ | $0.55(0.42-0.71)$ |
| DPP <br> completed_11 <br> sessions | $0.90(0.70-1.16)$ | $0.81(0.62-1.04)$ | $0.74(0.57-0.96)$ | $0.52(0.40-0.68)$ |
| Age categories |  |  |  | $1($ ref) |

Notes: Odds-ratios and $95 \%$ CIs from a multinomial logistic regression model. Index of Multiple Deprivation regressed on dataset identifier adjusted for socio demographic characteristics. Survey observations are weighted using UKHLS and HSE survey blood weights accounting for selection probabilities, attrition, and non-response.

Table S12: Predicted probabilities and $95 \%$ CIs of the general population (UKHLS and HSE) and various DPP stages for Index of Multiple Deprivation (illustrated in Figure 4)

|  | Least deprived |  |  | Fourth quintile |  |  | Third quintile |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \hline \text { Predicted } \\ \mathrm{Pr} \\ \hline \end{gathered}$ | 95\% CIs |  | $\begin{gathered} \text { Predicted } \\ \text { Pr } \end{gathered}$ | 95\% CIs |  | $\begin{gathered} \hline \text { Predicted } \\ \text { Pr } \\ \hline \end{gathered}$ | 95\% CIs |  |
| UKHLS | 19\% | 15.6\% | 21.8\% | 20\% | 17.0\% | 23.1\% | 22\% | 18.3\% | 24.9\% |
| HSE | 23\% | 20.2\% | 25.3\% | 22\% | 20.1\% | 24.9\% | 22\% | 19.4\% | 24.2\% |
| DPP identified | 17\% | 17.3\% | 17.5\% | 19\% | 19.2\% | 19.3\% | 21\% | 20.7\% | 20.9\% |
| DPP offered | 17\% | 16.8\% | 17.2\% | 19\% | 18.6\% | 19.0\% | 21\% | 20.9\% | 21.3\% |
| DPP attended | 23\% | 23.1\% | 23.7\% | 21\% | 20.4\% | 21.0\% | 20\% | 19.9\% | 20.4\% |
| DPP <br> completed_8 <br> sessions | 24\% | 23.9\% | 24.9\% | 22\% | 21.2\% | 22.2\% | 21\% | 20.8\% | 21.8\% |
| $\begin{aligned} & \text { DPP } \\ & \text { completed_11 } \\ & \text { sessions } \end{aligned}$ | 24\% | 23.0\% | 24.2\% | 23\% | 22.2\% | 23.3\% | 22\% | 21.4\% | 22.6\% |
|  | Second quintile |  |  | Most deprived |  |  |  |  |  |
|  | $\begin{aligned} & \text { Predicted } \\ & \text { Pr } \end{aligned}$ | 95\% CIs |  | $\begin{gathered} \text { Predicted } \\ \text { Pr } \end{gathered}$ | 95\% CIs |  |  |  |  |
| UKHLS | 20\% | 16.9\% | 23.4\% | 20\% | 16.4\% | 23.6\% |  |  |  |
| HSE | 19\% | 17.1\% | 21.6\% | 14\% | 11.8\% | 15.5\% |  |  |  |
| DPP identified | 20\% | 20.3\% | 20.5\% | 22\% | 21.9\% | 22.1\% |  |  |  |
| DPP offered | 22\% | 21.9\% | 22.3\% | 21\% | 20.9\% | 21.1\% |  |  |  |
| DPP attended | 19\% | 18.5\% | 19.0\% | 17\% | 16.7\% | 17.2\% |  |  |  |
| DPP completed_8 sessions | 19\% | 18.2\% | 19.1\% | 14\% | 13.7\% | 14.4\% |  |  |  |
| DPP completed_11 sessions | 19\% | 18.2\% | 19.3\% | 13\% | 12.4\% | 13.4\% |  |  |  |



Figure S1: Predicted probabilities of the general population (UKHLS and HSE) and various DPP stages for sex. More information about the regression model in Table $S 4$ and predicted probabilities in Table S5. Note: predicted $\%$ s (probabilities) and predicted $95 \%$ CIs were drawn from regression models by sex for general population and administrative data.

## REFERENCES

[1] Benzeval M, Davillas A, Kumari M, Lynn P. Understanding society: the UK household longitudinal study biomarker user guide and glossary. 2014. https://www.understandingsociety.ac.uk/sites/default/files/downloads/documentation/he alth/user-guides/7251-UnderstandingSociety-Biomarker-UserGuide-2014.pdf


[^0]:    *Comparable disability measures were not available in the DPP identified and offered stages.

