NHS England Diabetes Prevention Programme

Professor Jonathan Valabhji OBE MD FRCP
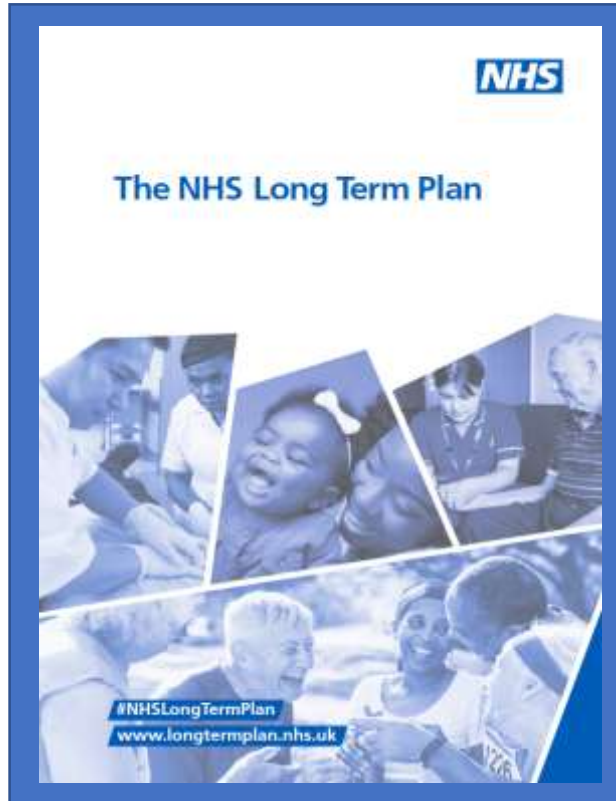National Clinical Director for Diabetes and Obesity

Dr Liz Martin
GP with Specialist Interest in Diabetes

Mr Tom Newbound,
Deputy Director, NHS Diabetes Programme, NHS England and NHS Improvement

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The NHS Long Term Plan

For diabetes, the NHS Long Term Plan sets out a range of improvements for those at risk of Type 2 diabetes and living with Type 1 and Type 2 diabetes; many of which we have already started to implement with our partners across the health system.

For obesity, there are a range of actions outlined, comprising a significant program of work.
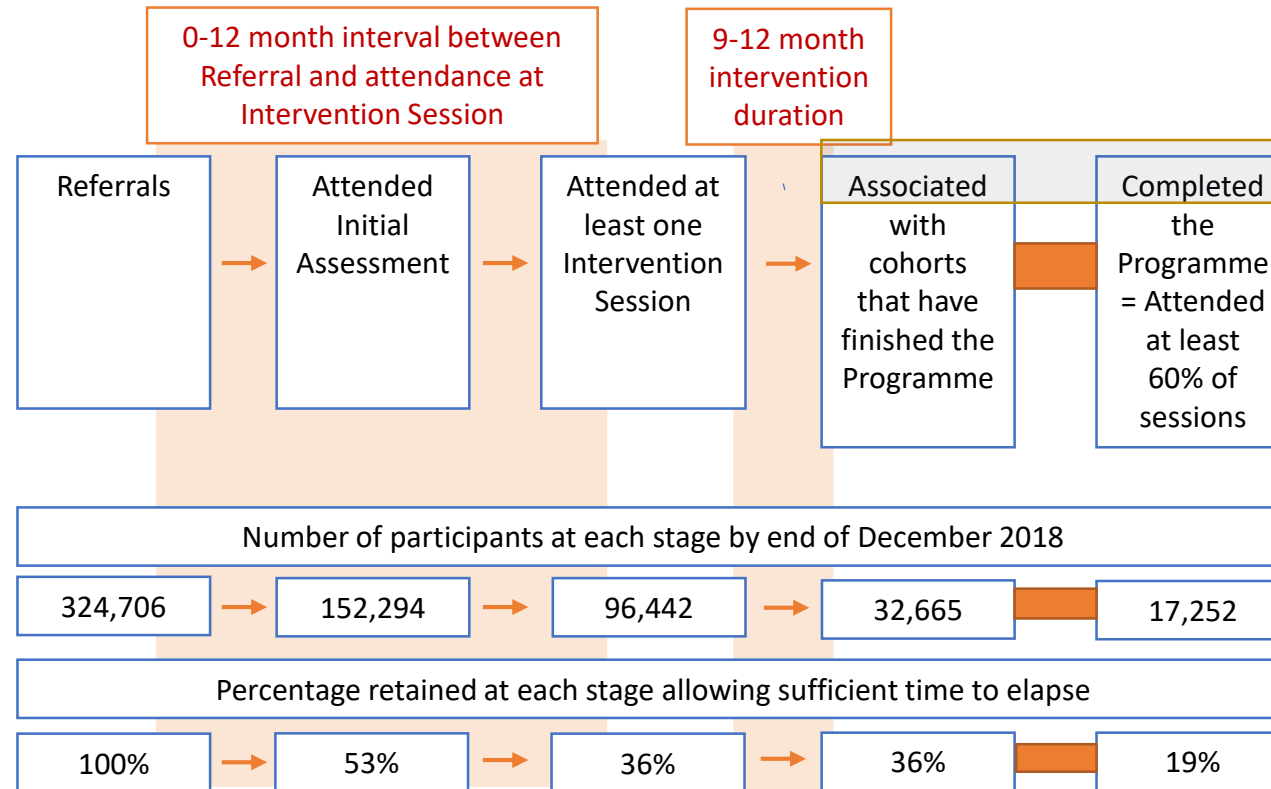
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Evolution

- Financial Year 2016/2017 = First wave of national roll-out

- 51% geographical coverage of England

- Financial Year 2017/2018 = Second wave

- 75% geographical coverage of England

- Financial Year 2018/2019 = Third wave

- Universal coverage of England by Summer 2018

Barron E, Clark R, Hewings R, Smith J, Valabhji J. Progress of the Healthier You: NHS Diabetes Prevention Programme: referrals, uptake and participant characteristics. Diabetes Med 2018; 35: 513-518.

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Public Health England | DIABETES UK — KNOW DIABETES. FIGHT DIABETES. | NHS

0-12 month interval between Referral and attendance at Intervention Session

9-12 month intervention duration

Referrals	Attended Initial Assessment	Attended at least one Intervention Session	Associated with cohorts that have finished the Programme	Completed the Programme = Attended at least 60% of sessions

Number of participants at each stage by end of December 2018

324,706	152,294	96,442	32,665	17,252

Percentage retained at each stage allowing sufficient time to elapse

100%	53%	36%	36%	19%

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Completion / Retention

- 32,665 participants associated with cohorts that have finished the Programme

- 17,252 attended at least 60% sessions, giving a 53% completion rate

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Completion of the programme, Mixed effects logistic regression
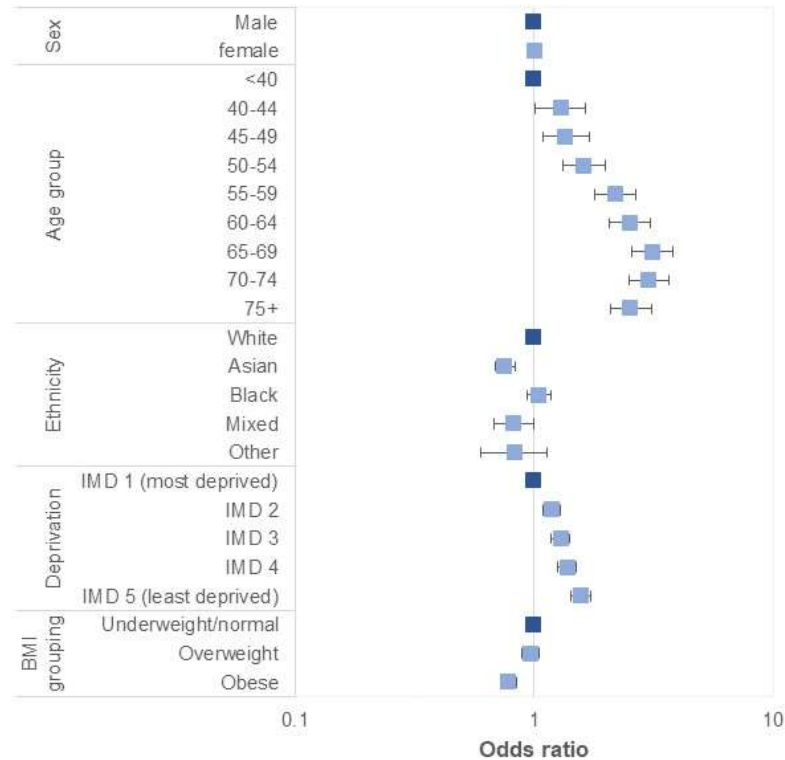
- No significant difference in completion by sex

- Increased as the age of the participant increased

- Asian and mixed ethnicity significantly lower completion. No significant difference in completion between black, other and white ethnic groups.

- Increased as deprivation decreased

- Significantly lower for obese participants

*Analysis based on complete case data. Provider also included in the logistic regression model as a fixed effect and local health economy as a random effect

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Weight Change

Mean weight change by number of sessions attended
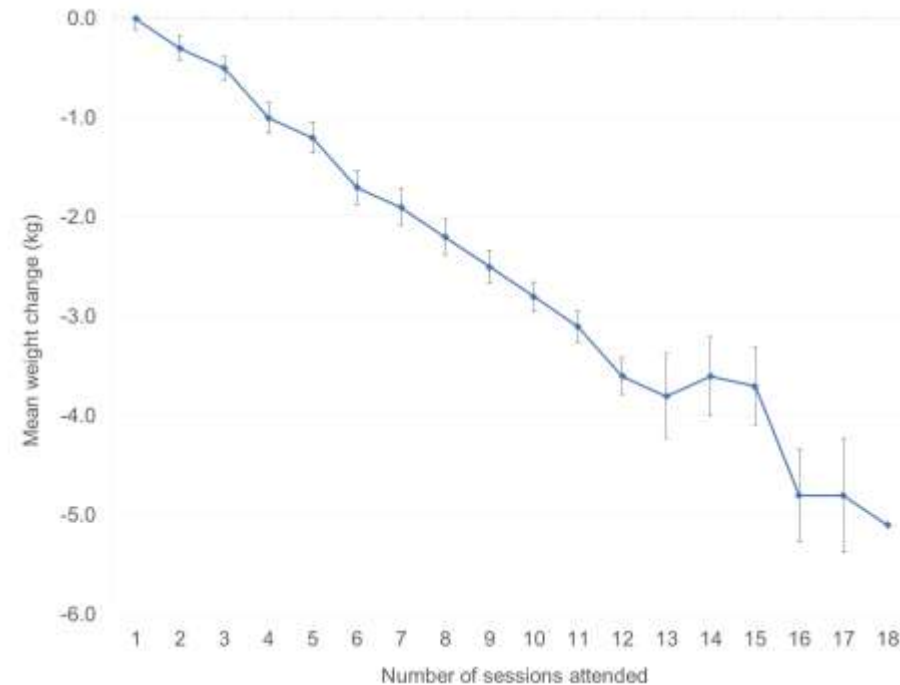
Completer Analysis
- Mean weight change of -3.3kg (-3.4 to -3.2kg)
- % Mean weight change of -4.0% (-4.0 to -3.9%)
- 37% achieving a weight loss of 5% or more

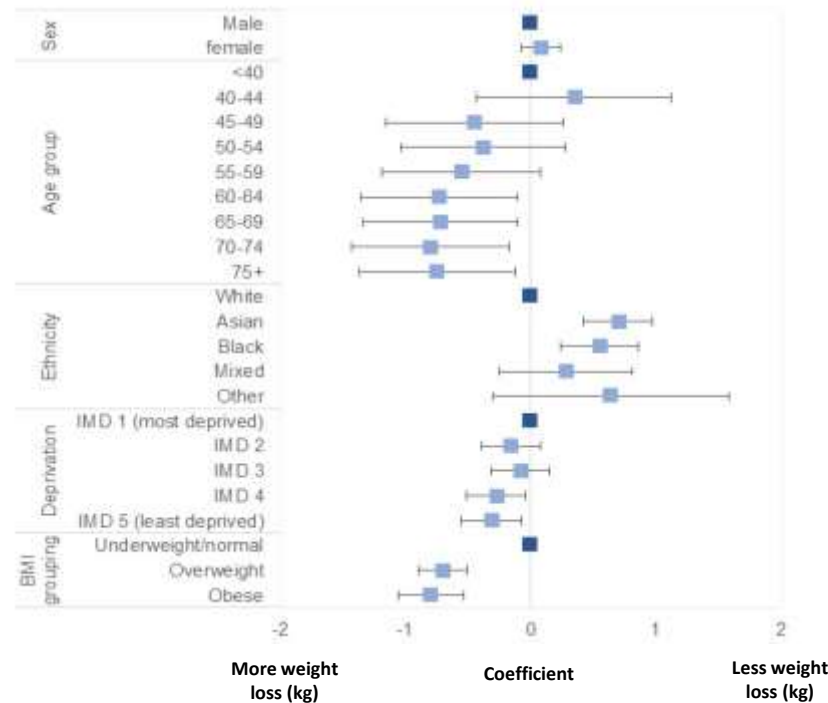**Intention-to-treat analysis**
- Mean weight change of -2.3kg (-2.3 to -2.2kg)
- % Mean weight change of -2.7% (-2.7% to -2.6%)
- 24% achieving a weight loss of 5% or more

*Using complete case data

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Weight change, Mixed effects linear regression for completers

- No significant difference by sex

- Larger weight loss as the age of the participant increases

- Asian and black ethnicity have a significantly smaller weight loss. No significant difference for mixed, other and white ethnic groups.

- Increased weight loss as deprivation decreased

- Significantly larger weight loss for overweight and obese participants

*Analysis based on complete case data. Provider, number of sessions and baseline weight measurement also included in the regression model as fixed effects and local health economy as a random effect

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HbA1c Change

Mean Hba1c change by number of sessions attended
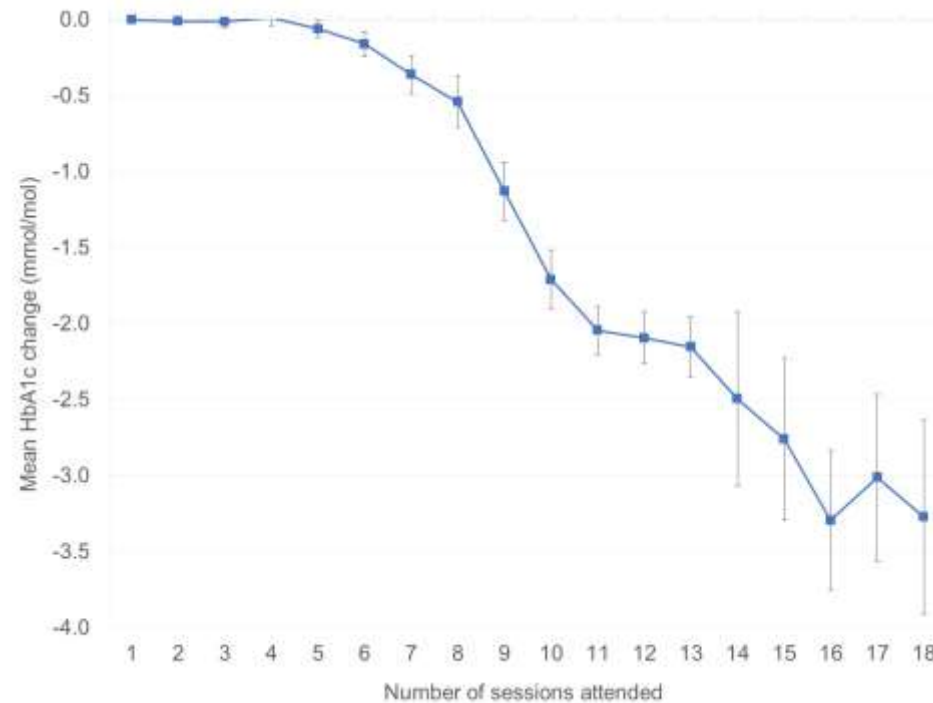
Completer Analysis
- Mean Hba1c change of
  -2.0mmol/mol
  (-2.0mmol/mol to -1.9mmol/mol)

Intention-to-treat analysis
- Mean Hba1c change of
  -1.3mmol/mol
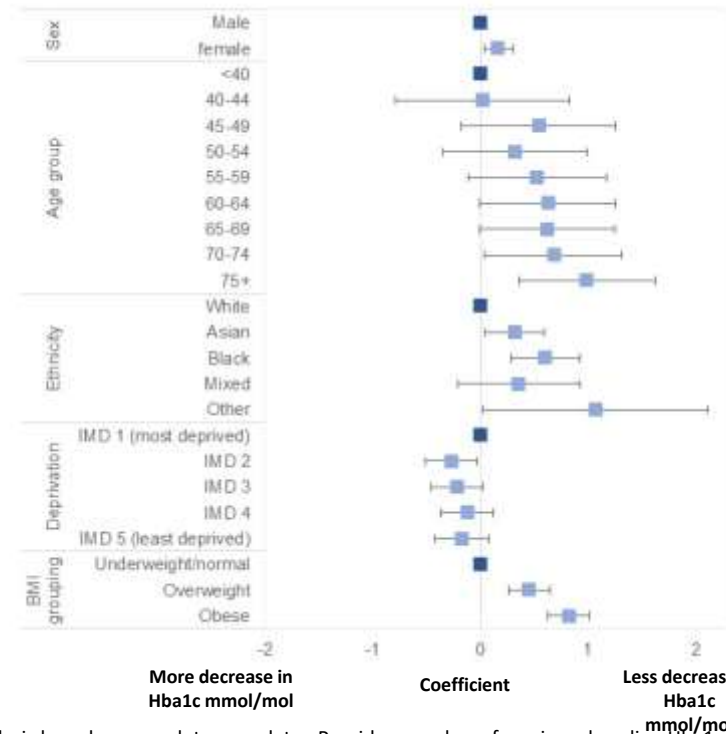 (-1.3mmol/mol to -1.2mmol/mol)

*Using complete case data

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Hba1c change, Mixed effects linear regression for completers

- Significantly smaller decrease for women

- Smaller decrease for older participants

- Asian and black ethnicity have significantly smaller Hba1c decrease. No significant difference between mixed, other and white ethnic groups

- Significant differences by deprivation

- Significantly smaller Hba1c decrease for overweight and obese participants

*Analysis based on complete case data. Provider, number of sessions, baseline Hba1c measurement and weight change also included in the regression model as fixed effects and local health economy as a random effect

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Conclusions

- **Encouraging retention, weight change and HbA1c change data**

- **Need further actions to address equity of access**

New Provider Framework from April 2019

- Digital modes of delivery to improve retention of

  People of working age

- Pay-for-Performance to incentivise retention of:

  People of BAME groups

  People of more deprived socioeconomic status

  People who are obese

Public Health England. A systematic review and meta-analysis assessing the effectiveness of pragmatic lifestyle interventions for the prevention of type 2 diabetes mellitus in routine practice. Available at: https://www.gov.uk/government/publications/diabetes-prevention-programmes-evidence-review

Galaviz K.I, Weber M.B, Straus A et al. Global Diabetes Prevention Interventions: A systematic Review and Network Meta-analysis of the Real-World Impact on Incidence, Weight and Glucose. *Diabetes Care* 2018; 41(7):1526-1534

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NHS England Diabetes Prevention Programme

Dr Liz Martin

GPWSI

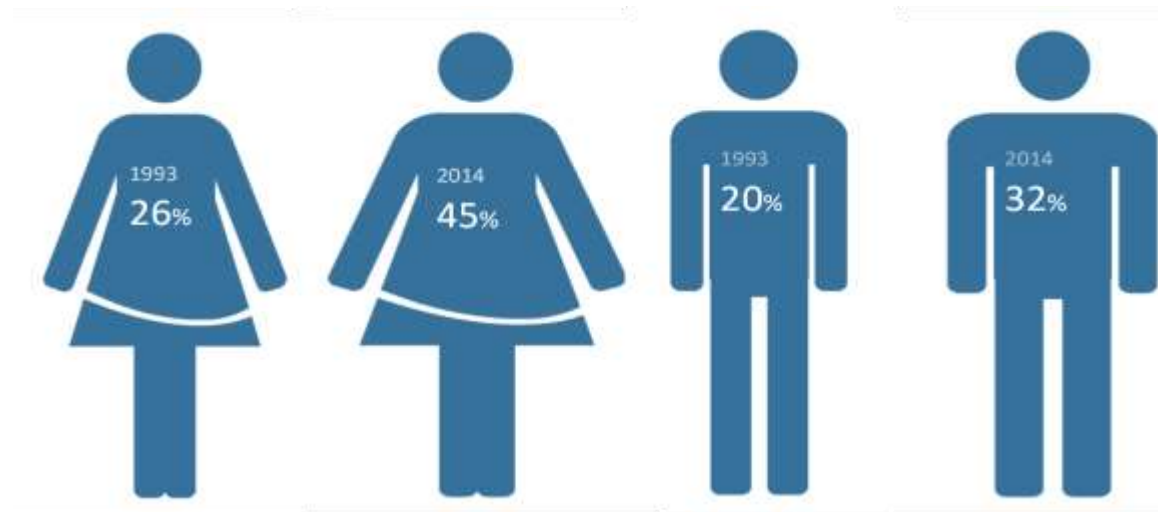NHS England and NHS Improvement
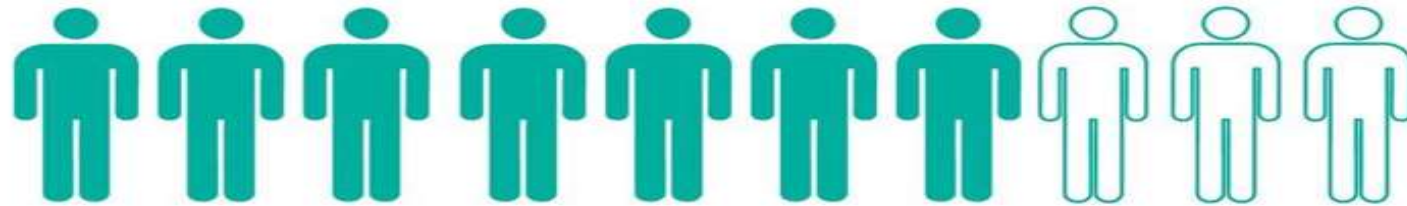
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Adult waist circumference
Health Survey for England

Adults aged 16+ years
Very high waist circumference is taken to be greater than 102cm in men and greater than 88cm (34.5 inches) in women

Adapted from Health Survey for England 2014 Trend Tables Commentary. Available from http://content.digital.nhs.uk/catalogue/PUB19297/HSE2014-Trend-commentary.pdf

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Estimated NHS costs

Diabetes: £10 billion
Diabetes Complications: £8 billion
Obesity: £5.1 billion
Smoking: £3.3 billion
Alcohol: £3.3 billion

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Obesity believed to account for **80-85%** of risk of developing type 2 DM;

People with BMI**>30** (=obese) are up to **80%** more likely to develop Type2 DM than **BMI <22;**

Other risk Factors: Sedentary lifestyle; Older age; Male sex; Family history; Ethnicity; Hypertension; High risk drugs.

Diabetes.co.uk 2018

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Can we prevent Type 2 Diabetes?

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Three large studies of individuals with impaired glucose tolerance:
Da Qing China, DPS Finland, DPP America
consistently found that diet and exercise reduce risk of diabetes

Da Qing: 6 year lifestyle intervention of diet, exercise or diet & exercise cumulative prevalence of diabetes

     6 years 43 v 66%

     20 years   80 v 93%

     Intervention resulted in an average 3.6 fewer years with diabetes

DPS: 4 year intervention

     At 2 years prevalence of diabetes was 6 v 14%

     At 4 years   11 v 23%

     At 6 years   23 v 38%

DPP: 3 year intervention (achieved initial 7kg weight loss)

     At 3 years prevalence of diabetes was 14 v 29%

     At 15 years   55 v 62%

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Eligibility for the NHS DDP

Eligible participants identified through 3 primary routes and must be:

- Be aged 18 or over;
- Not be pregnant;
- Not have a blood result suggesting Type 2 diabetes;
- Have Non Diabetic Hyperglycaemia (Pre-Diabetes) identified by blood test within the last 12.

Existing registers of patients with NDH	Opportunistic identification	NHS Health check Programme

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Non-diabetic hyperglycaemia (NDH)

Also known as 'pre-diabetes':

- HbA1c of **42-47mmol/mol** (6.0%-6.4%), or;

- Fasting Plasma Glucose (FPG) of **5.5-6.9mmol/l**, or;

- Oral Glucose Tolerance Test (75g load) 2hr result of **7.8-11.0mmol/l**.

- Includes previous definitions of impaired fasting glycaemia and impaired glucose tolerance as well as an additional cohort with FPG 5.5-6.0mmol/l;

- Tests identify different cohort of individuals therefore **pick a test and stick with it**;

- One reading indicating NDH, from any test, is needed for referral to the DPP.

- **Someone diagnosed with diabetes in their 50s has an average reduced life expectancy of 6 years.**

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Why is NDH important?

Impaired glucose regulation (below threshold for diabetes) associated with **higher CVD** event rate than normoglycaemia (Barr et al, 2007)

Evidence that HbA1c based definitions of NDH perform better in predicting **cardiovascular disease and all cause mortality**

Association with increased risk of **CKD and neuropathies** (Bansal, 2015)

High risk of progression to **Type 2 Diabetes** – therefore important that people with NDH are retested annually

Diabetes is a leading cause of blindness, kidney disease and amputations.

Someone diagnosed with diabetes in their 50s has an average reduced life expectancy of 6 years

Barr et al (2007). Risk of Cardiovascular and All-Cause Mortality in Individuals with Diabetes Mellitus, Impaired Fasting Glucose, and Impaired Glucose Tolerance. The Australia Diabetes, Obesity, and Lifestyle Study (AusDiab). Circulation. 116: 151-157

Bansal (2015). Prediabetes diagnosis and treatment: a review. World J Diabetes. 6(2): 296-303

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NHS Diabetes Prevention Programme

- Branded as **Healthier You**;

- Designed to provide lasting behaviour changes which will achieve :-
  - **Healthy weight**
  - **Good dietary choices**
  - **And physical activity**

- Intervention over **9 months** with minimum of **13 sessions** and **16 hours contact**;

- Delivered in **groups** with tailored support and available nationwide

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NHS Diabetes Prevention Programme:
A user perspective

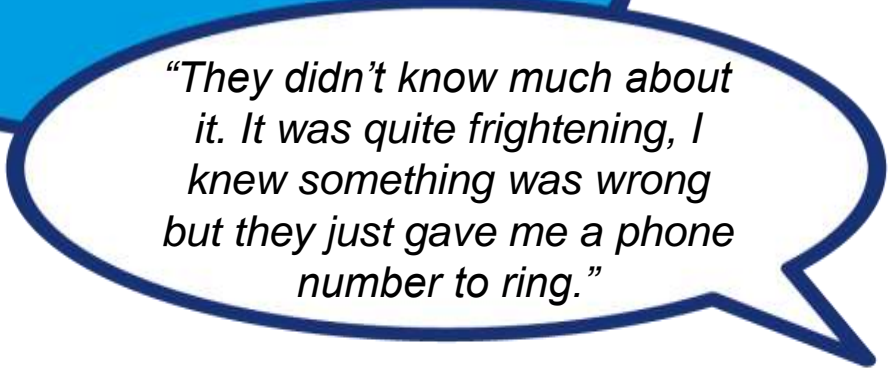## Contribution from Diabetes UK

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My perspective as a clinician?

- At last- something to offer!
- Local and accessible
- Commitment - from referring clinician

    from participant

- Need follow on/longer term support

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Tom Newbound

Deputy Director - Diabetes,
NHS England & Improvement

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Digital Provision – Who will benefit?

Currently up to half of referrals decline and more fail to progress to group sessions

We have undertaken analysis of characteristics of those who decline or do not progress through to the current face to face service.

Analysis shows these people are (In order of importance)
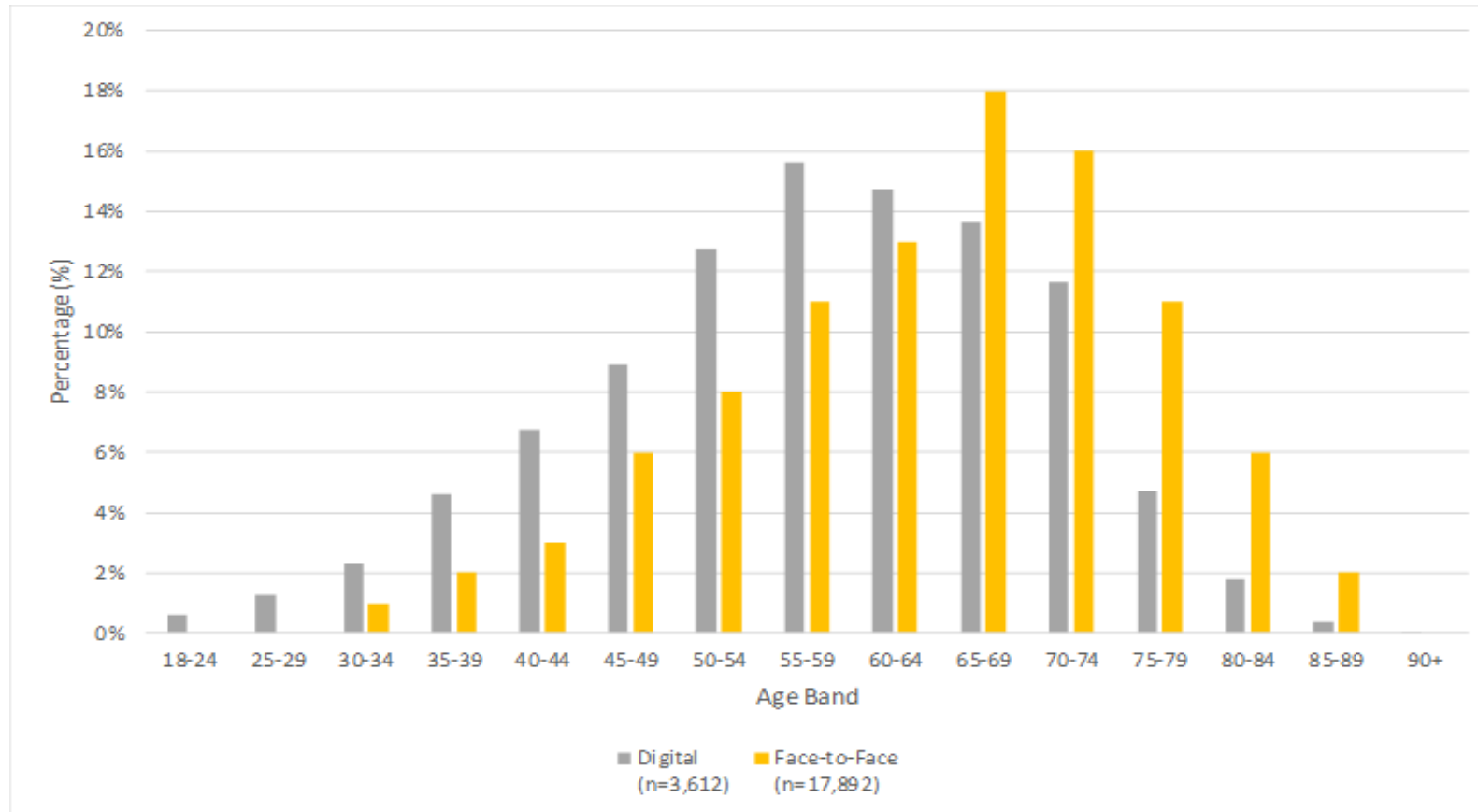
Working age

Deprived and

From a BAME background

If we can show that digital delivery routes boost uptake for these demographics we can raise overall performance and target health inequalities.

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Age profile : Digital

Pilot Findings

- Digital provision is reaching a **younger (working age demographic)**

- Good representation of **BAME groups**;

- Outcomes in line with those observed in the F2F service;

- Differences in outcomes for demographic characteristics closely resemble those observed in F2F service.

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Key headlines

- NHS England will continue to commission and fund the NHS DPP nationally for at least a further 4 years from 19/20;

- Digital included to widen access, but will not replace face to face;

- Clear focus on widening access and supporting our working age cohort;

- New providers and framework;

- Weight loss thus far in line with the RCT evidence base.

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Thank you

For further information on the NHS Diabetes Programme please sign up to the NHS Diabetes Programme bulletin:

https://www.england.nhs.uk/email-bulletins/nhs-diabetes-programme-bulletin/

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