Supporting Outcomes of the National Diabetes Prevention Programme

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PHE CVD Conference 6th February 2020

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Early Outcomes from the NHS Diabetes Prevention Programme

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

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National Institute for Health and Care Excellence (NICE)

NICE Public Health guideline 38 (2012)

Type 2 diabetes: prevention in people at high risk

Risk identification = 2 stages

1st stage = validated risk assessment tool

2nd stage = blood test

High risk: **HbA1c 42-47 mmol/mol (6.0-6.4%) OR**

Fasting plasma glucose 5.5-6.9 mmol/l

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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

70 YEARS OF THE NHS 1948 - 2018

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		Number of participants at each stage in the programme by Nov 19	Percentage retained allowing sufficient time to elapse
Individual referred into the NHS DPP	0-12 month interval between referral and attendance at Intervention Session	533,998	100%
Attends Initial Assessment		264,203	53%
Attends Intervention Sessions	9-12 month intervention duration	189,885	38%

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Completion

- As of end of December 2018,
  - 32,665 participants finished the programme
  - 17,252 attending at least 60% of sessions

- As of end of November 2019,
  - 95,450 participants finished the programme
  - 49,408 attending at least 60% of sessions
  - 52% completion rate of the intervention sessions
  - **Equating to 19% of all referrals**

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Check for updates

Early Outcomes From the English National Health Service Diabetes Prevention Programme

Jonathan Valabhji,[1,2,3] Emma Barron,[4] Dominique Bradley,[1] Chirag Bakhai,[1,5] Jamie Fagg,[4] Simon O'Neill,[6] Bob Young,[6] Nick Wareham,[7] Kamlesh Khunti,[8] Susan Jebb,[9] and Jenifer Smith[4]

Diabetes Care 2020;43:152–160 | https://doi.org/10.2337/dc19-1425

https://care.diabetesjournals.org/content/diacare/43/1/152.full.pdf

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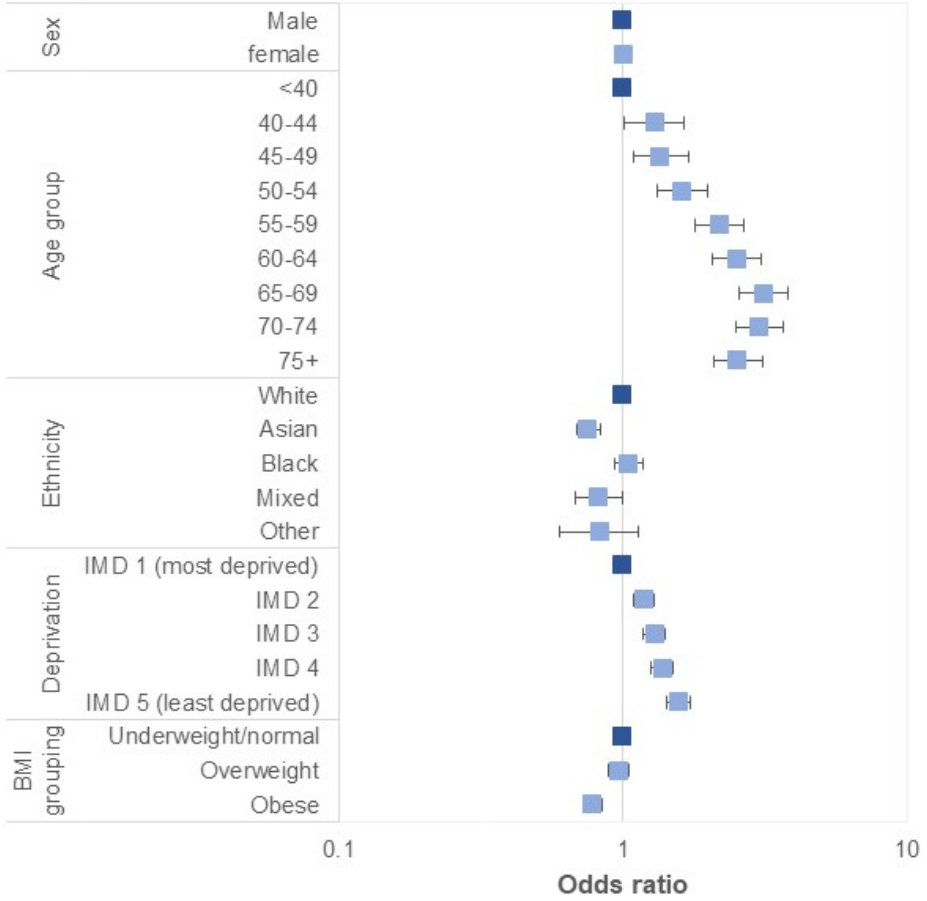
Completion of the programme, Mixed effects logistic regression



- 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

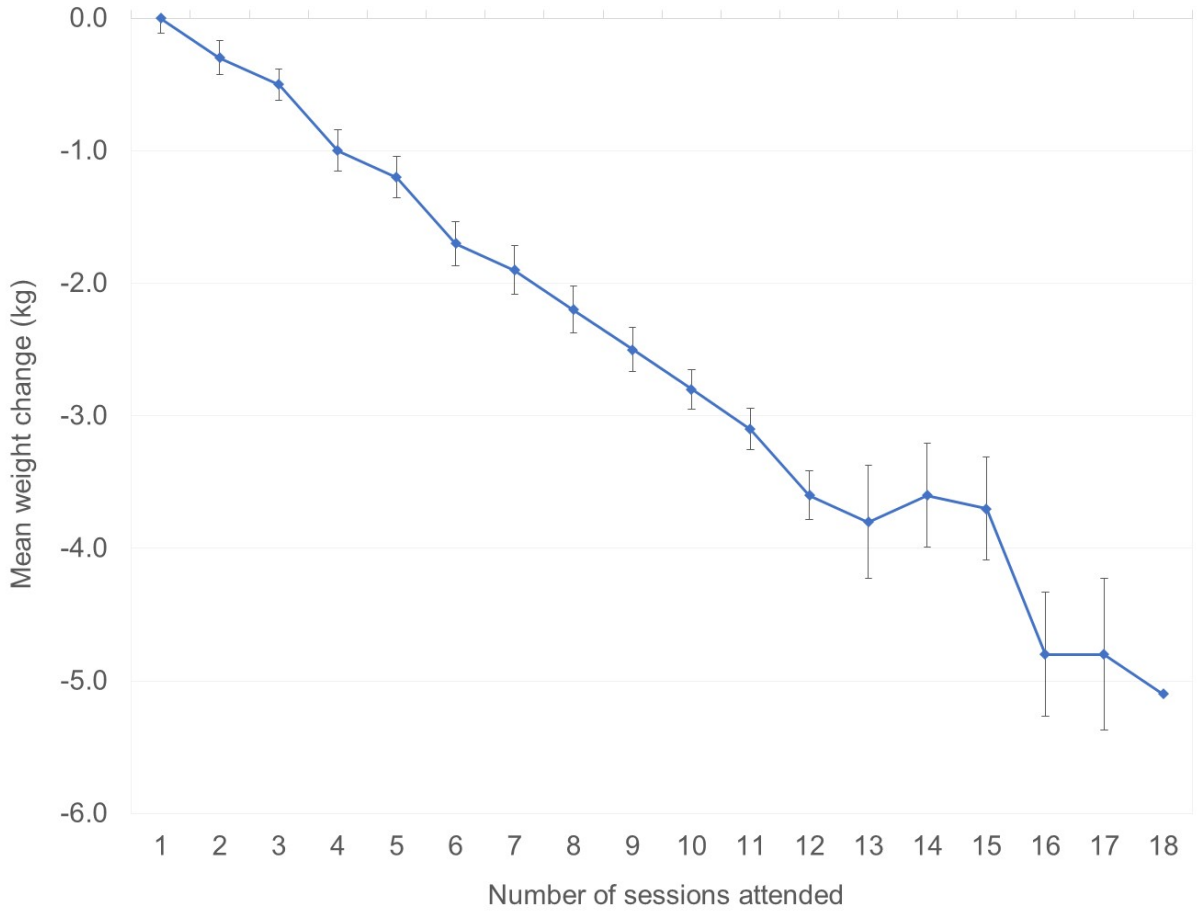
Completer Analysis

- 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

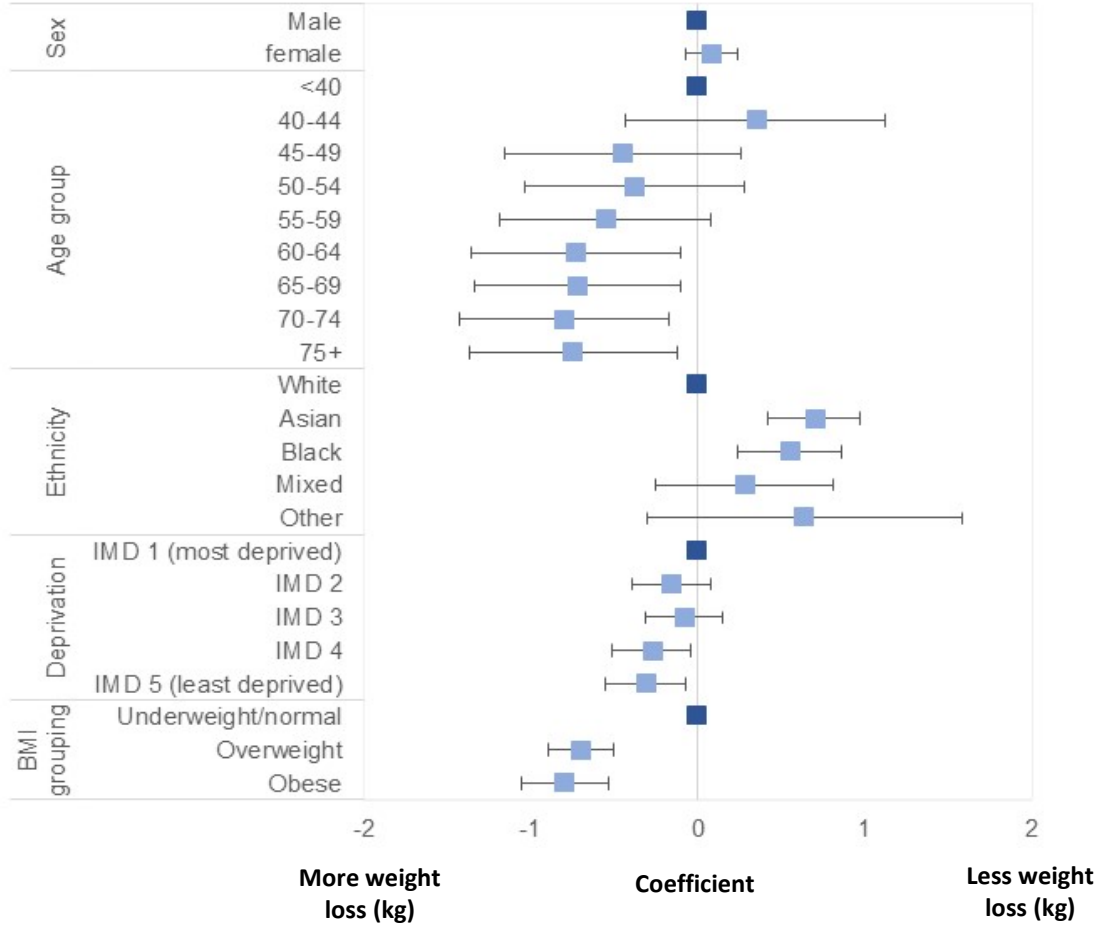
- Mean weight change of -2.3kg (-2.3 to -2.2kg)
- % Mean weight change of -2.7% (-2.7% to -2.6%)
- 24% achieving a weight loss of 5% or more

Mean weight change by number of sessions attended



*Using complete case data

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

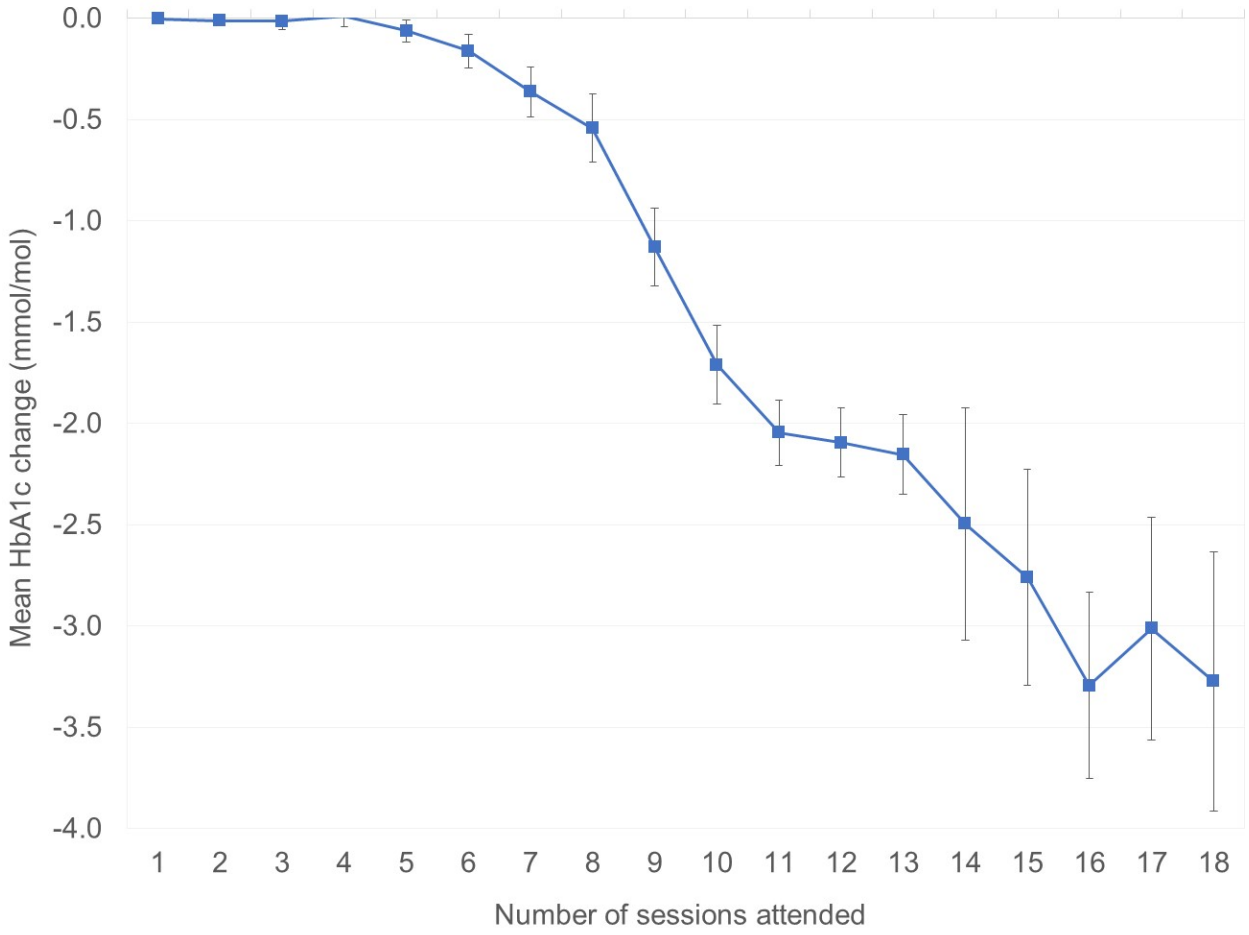
Completer Analysis

- 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)

Mean Hba1c change by number of sessions attended



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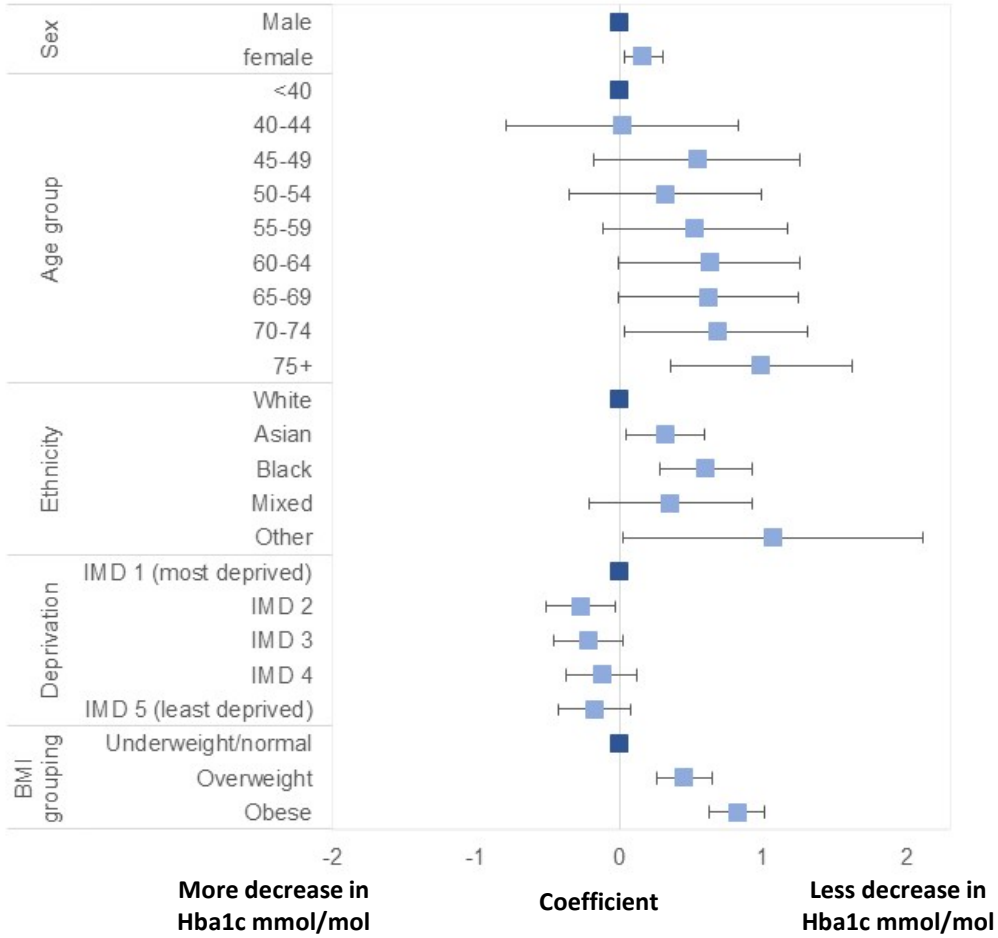

- Significantly smaller decrease for women
- Smaller decrease for older participants
- Asian and black ethnicity have significantly smaller Hba1c decrease. No significant difference between mixed, other and white ethnic groups
- Significant differences by deprivation
- Significantly smaller Hba1c decrease 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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Publications

- Valabhji J, Barron E, Bradley D, Bakhai C, Fagg J, O'Neill S, Young B, Wareham N, Khunti K, Jebb S, Smith J. Early outcomes from the English National Health Service Diabetes Prevention Programme, Diabetes Care 2020; 43: 152-160.

- McGough B, Murray E, Brownlee L, Barron E, Smith J, Valabhji J. The Healthier You: NHS Diabetes Prevention Programme: digital modes of delivery engage younger people. Diabet Med 2019; 36: 1510-1511.

- Murray E, Daff K, Lavida A, Henley W, Irwin J, Valabhji J. Evaluation of the digital diabetes prevention programme pilot: uncontrolled mixed-methods study protocol. BMJ Open 2019; 9: e025903. IF: 2.376.

- Fagg J, Valabhji J. How do we identify people at high risk of Type 2 diabetes and help prevent the condition from developing? Diabet Med 2019; 36: 316-325.

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

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Healthier You: NHS Diabetes Prevention Programme Digital Journey

Ben McGough

Digital Workstream Lead
NHS Diabetes Prevention Programme

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Context to digital approaches in 2015/16

- The number and variety of health apps and digital services available present an overwhelming amount of options;
  - Lack of trial evidence for usage and effectiveness (with questions about appropriateness of “traditional” RCT approach for digital products)
  - Implications of introduction unknown (i.e. widening of health inequalities, impact on sustainability of F2F service)
  - Formal assessment of quality and indicators of effectiveness of products was still emerging

Result: Digital not included in original service specification. Need to bridge the evidence gap

Context to Digital (2018)

- Detailed analysis of characteristics of those who decline on referral or after an assessment when they understand the intervention commitment and people who do not get to the first intervention session.
- In order of importance characteristics of those declining are of

  - working age,

  - deprived and;

  - Black and Minority Ethnic.

Perceived Opportunities of Digital Approaches

- Appeal to younger working age population
- Potential to be more scalable than traditional Face to Face services
- Removes physical barriers to mobilisation – e.g. filling courses / wait times
- Convenience of access and support – just in time
- Easier to personalise content / advice e.g. adapt to diverse cultural populations

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Real world testing

- Identify & quality assure Digital Behaviour Change Interventions aligned to achieving DPP outcomes
- Identify pilot geographies to identify and refer at risk individuals within primary care
- Design evaluation framework to assess effectiveness of digital approaches
- Contracts in place for service delivery with providers of digital interventions
- Achieve 3,500 user registrations
- Interim report on 6 month outcomes (March 2019)
- Final report on 12 month outcomes (Summer 2020)

Features / mediums of interaction of chosen interventions

	Buddi Nujjer	Hitachi	Liva	OurPath	Oviva
Peer support			✓	✓	
Wearable provided (fitness tracker)	✓			✓	
Tele service		✓			✓
Smartphone app	✓		✓	✓	✓
Website		✓			✓
Text service	✓		✓	✓	✓
Onboarding process	Phone call	Phone call	Face-to-face	Phone call	Phone call

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Emerging results (6 months)

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Uptake

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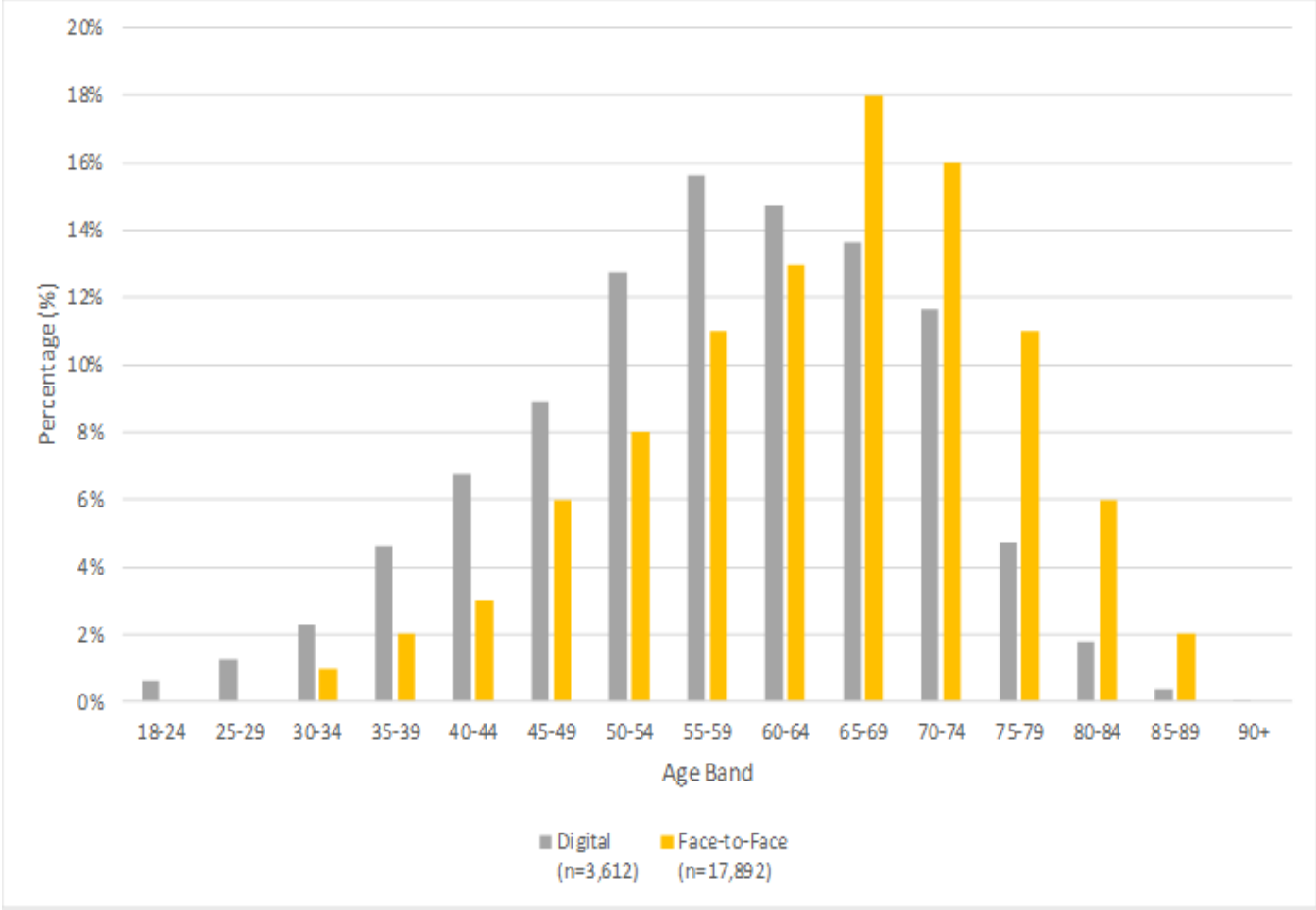
Age profile

- Over two-thirds (68%) of digital registrations were for participants aged less than 65 years compared with 45% of attendees at initial assessment for the face-to-face interventions

- (16% of digital registrations were aged between 18–44 years compared with7% of attendees at initial assessment for the face-to-face



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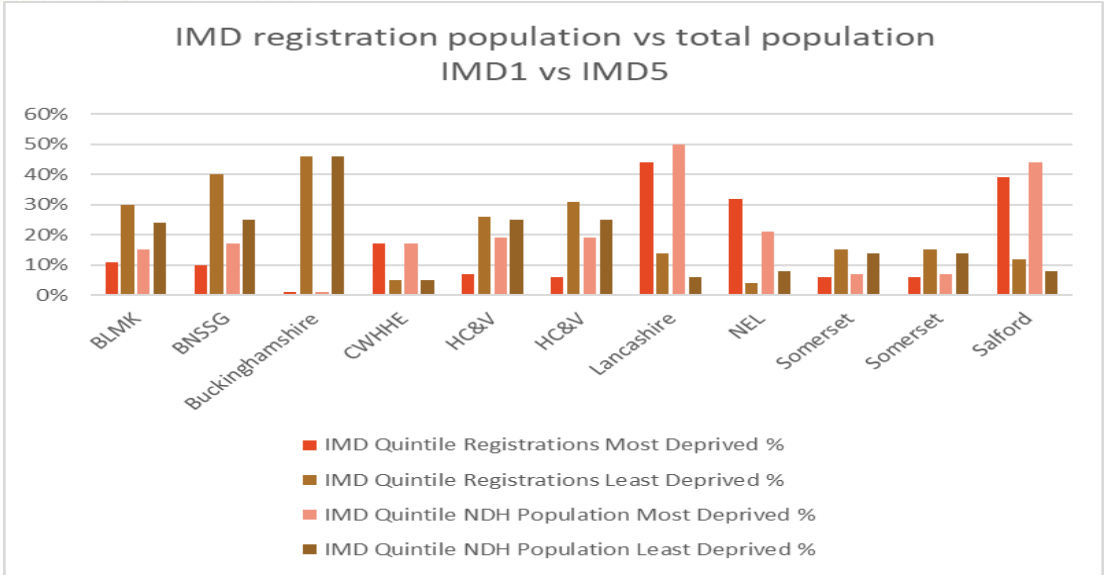
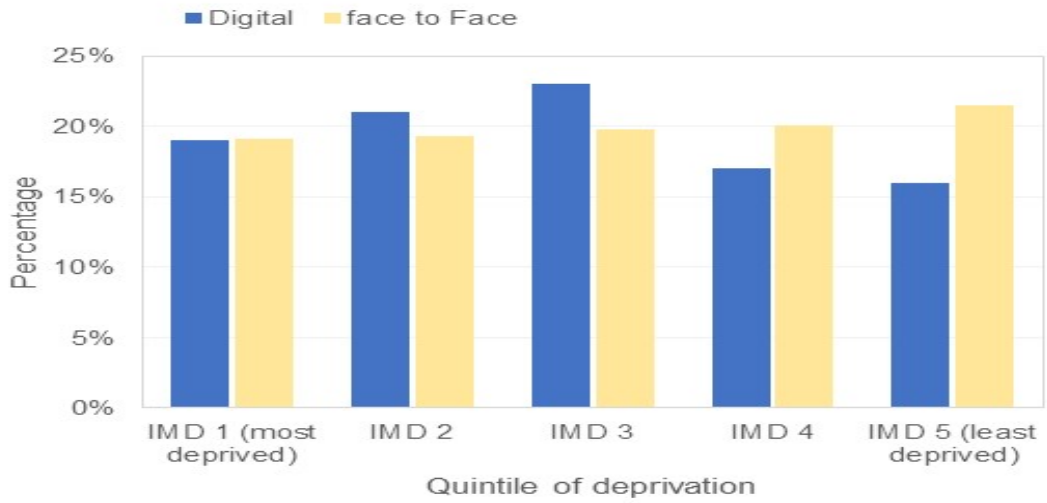
IMD Deprivation

- **19%** were in quintile 1 (most deprived)
- **21%** were in quintile 2,
- **23%** were in quintile 3
- **17%** were in quintile 4 and;
- **16%** were in quintile 5 (least deprived).

**There was missing data for 157 participants.*

- Same %s for most deprived, but higher proportions for deprivation quintiles 1-3 for digital compared to F2F





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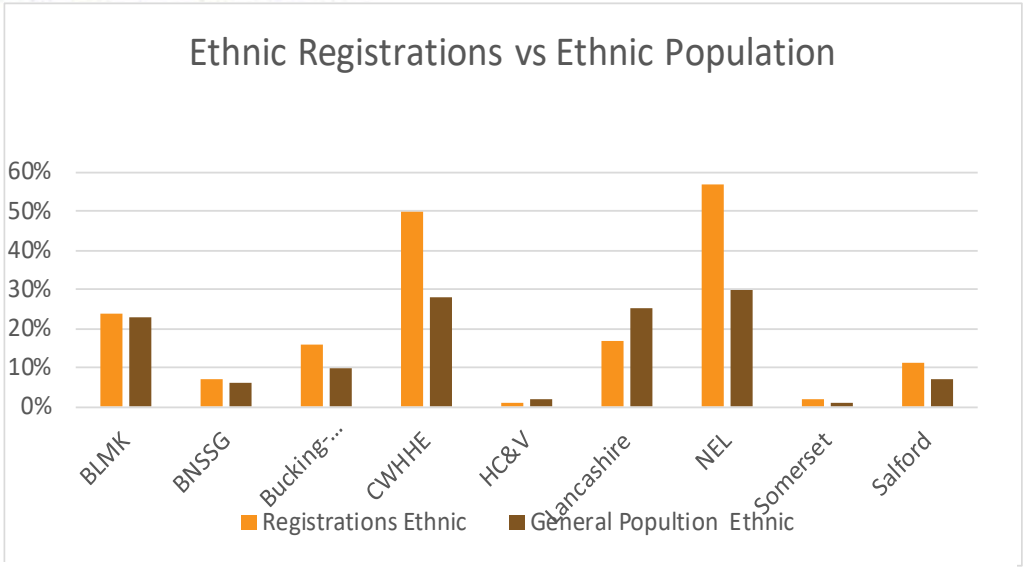
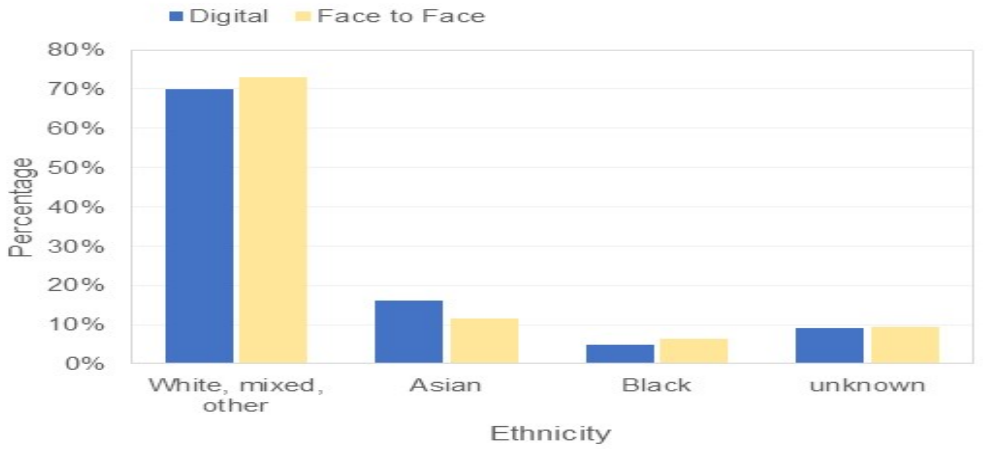
Ethnicity

- 70% White, Mixed, Other*
- 16% Asian
- 5% Black
- 3% Prefer not to say
- 6% missing data

- Ethnicity distribution similar to that observed in F2F and comparable to that of local population





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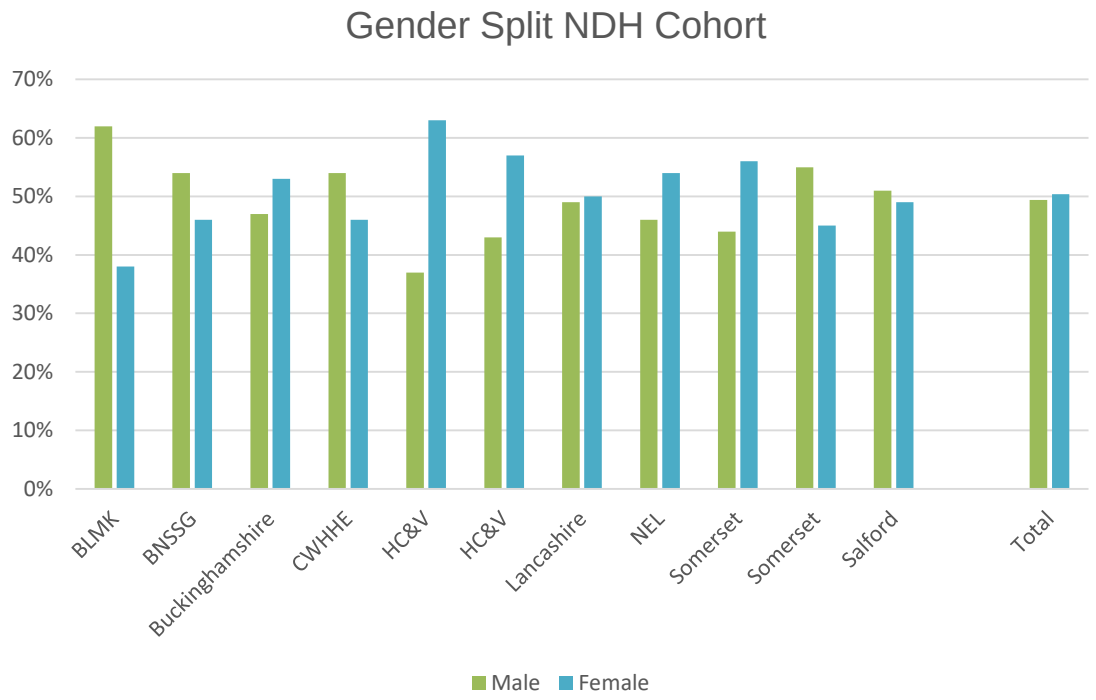
Gender of Participants

- 49% Male
- 50% Female

A higher proportion of males (+4%) was observed in digital pilots compared to F2F service



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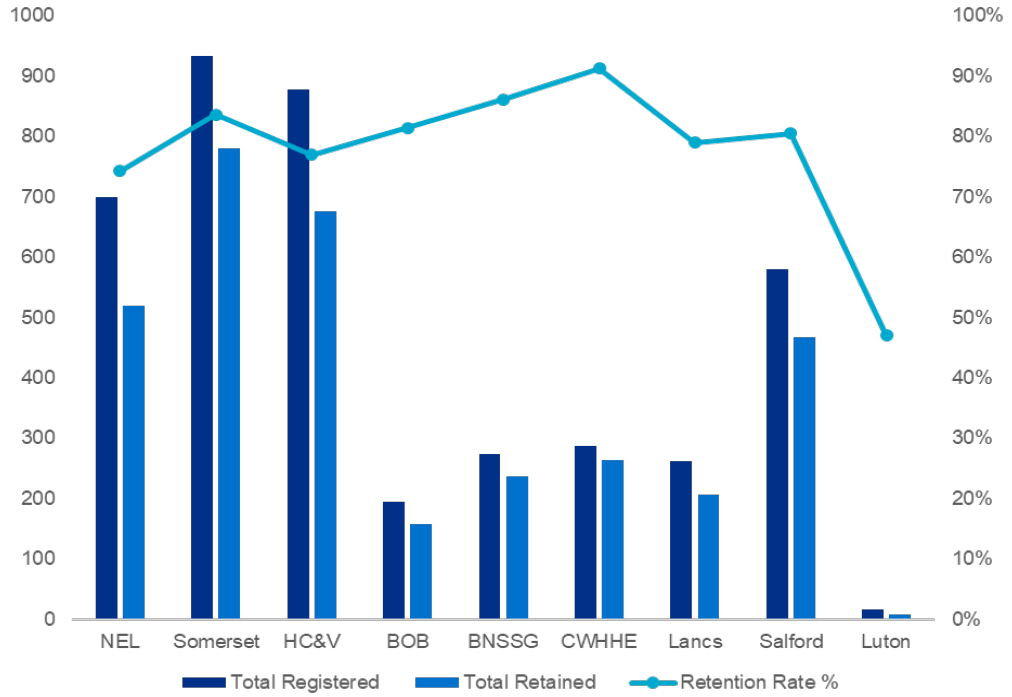
Enagagement @ 3 months following registration

- Retention @ 3 months is 79%
- Engagement measure dependant on provider intervention approach
- Validation of engagement via contact with 20% sample of participants to confirm continuing usage of service



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Outcome data @ 6 months all providers

- The average weight change was -4kg (4.5%)
- The average HbA1c change was -1.6mmol / mol (3.7%)

Variable	COHORT A			
	Baseline Average	Change	6-month Estimate	Sample Size
Weight (kg)	88.3	**-4.0** (4.5%) U: -4.3 L: -3.7	84.3	1,081
HbA1c (mmol/mol)	43.4	**-1.6** (3.7%) U: -1.8 L: -1.4	41.8	1,150

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New DPP Framework (2019)

- Capacity of the programme doubling (200k places per annum by 2022)

- Contracts under the new framework include digital provision to improve retention of People of working age

- Pay-for-Performance to incentivise retention of:
  - People of non-White ethnicity
  - People of more deprived socioeconomic status
  - People who are obese

- 45% of the England now has a digital provider in place

- Full national coverage of new contracts 2020/2021

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Summary

- Digital methods of delivering behaviour change for diabetes prevention:

  - are acceptable to the population

  - do not appear to exasperate health inequalities

  - appeal to a younger age group

  - deliver comparable outcomes to traditional group based programmes

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Healthy Living for People with Type 2 Diabetes

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Workstream overview

- Healthy Living is a self management and education digital tool currently being developed with Carnall Farrar and Changing Health
- NHS England and Improvement has committed to the roll out of Healthy Living in the NHS Long Term Plan, as part of a promise to expand provision of structured education including digital options
- Tool will be available for free to every CCG across England with no caps to referrals
- User research and input from 11 Early Engagement sites, representing 25% England, is being utilised throughout to incorporate patient, HCP, carer and commissioner opinion
- Testing begins in February 2020, and full national roll out begins Summer 2020

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In the UK, more than 2.8 million people have been diagnosed with Type 2 diabetes

Approximately 10% of health expenditure in England is due to diabetes, equating to around £11bn per year in costs to the NHS, largely due to preventable complications

Good self-management is key to preventing complications and improving health outcomes for individuals

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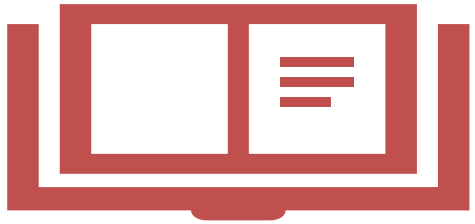
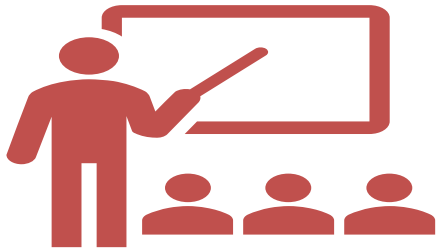
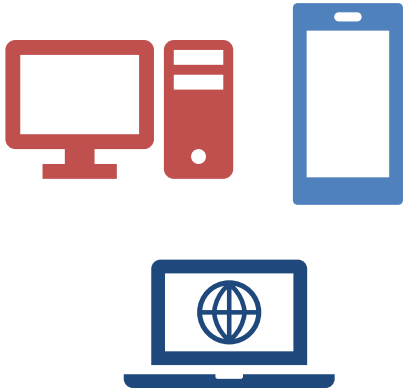


- Referral to structured education following diagnosis recommended by NICE
- Incentivised through QOF
- Despite high offer rates (78%), recorded uptake of traditional group-based, face-to-face structured education sessions is low (7.1% in 2016)



- Traditionally group based
- Attendance may be challenging for those who work, have family, or caring commitments
- Patient needs vary over time
- Education at point of diagnosis unlikely to meet needs over time



- Online solution potentially more accessible
- More efficiently delivered
- Improved patient experience for those who do not want to or cannot engage with face to face education

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Healthy Living for people with Type 2 diabetes

- Based on HeLP diabetes
- Online self-management support programme and education pathway for adults developed by University College London
- Provided information about Type 2 diabetes and treatments, emotional support and helped with adopting and maintaining healthy behaviours
- RCT showed modest but significant improvements in HbA1c levels and reduction in diabetes related distress
- Cost savings of £111 per person for reduced healthcare use compared to regular care (includes primary care, outpatients, prescriptions and community appointments)

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"Online programmes offer individuals the flexibility to access support that fits around their lifestyle. All the content in our programme was evidence based drawing on a range of diabetes management research including behavioural change, accessibility and usability, and promoting emotional wellbeing by drawing on principles of cognitive behavioural therapy and mindfulness.

"We are delighted that the proven benefits of this programme for people with type 2 diabetes can be made available to everyone in England. It is great to see the advantages of online interventions (scalability and cost-effectiveness) being realised in the NHS."

Professor Elizabeth Murray (UCL Institute of Epidemiology & Health Care)

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FAQs

- **How can I refer?** Patients will be able to self-refer, and HCPs will be able to refer via a standardised email referral form
- **Who is eligible to use the programme?** Anyone over the age of 18 living with Type 2 diabetes, caring for someone with Type 2 diabetes (including HCPs), or who wants to learn more about the condition
- **Does a referral count towards QOF?** Yes.
- **Will referring to Healthy Living improve my CCGs results for structured education in the NDA?** Yes. Healthy Living will automatically update the NDA with data, with no need for separate CCG or GP uploads.
- **What about the other programmes we have now?** Patients should be offered choice.

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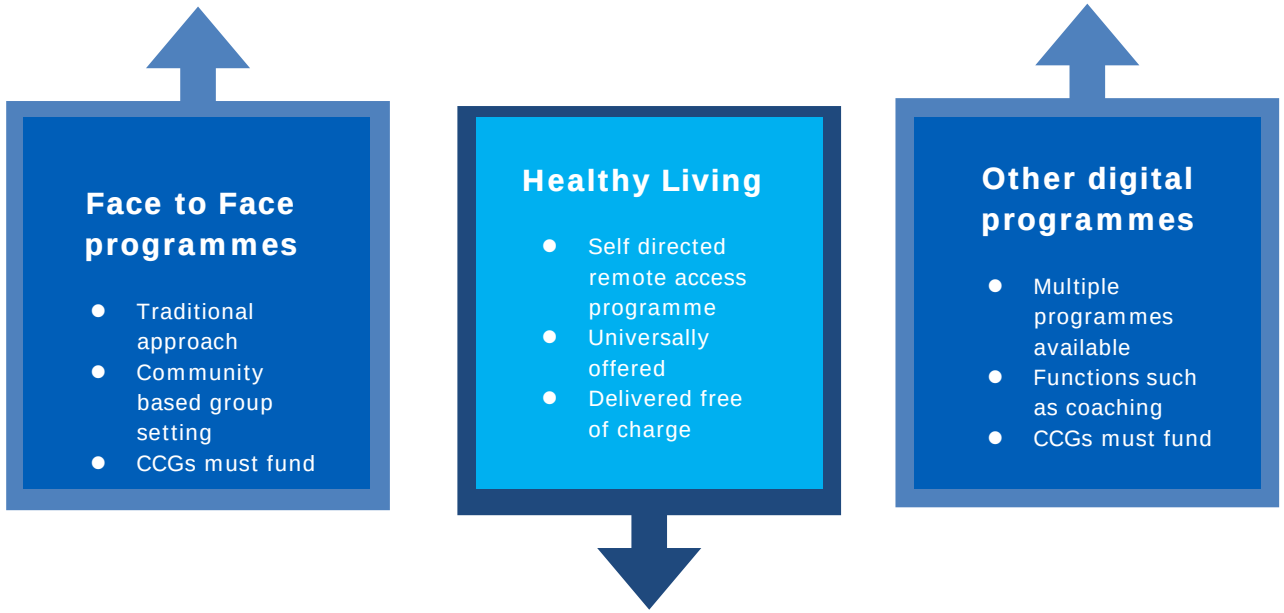
Market position



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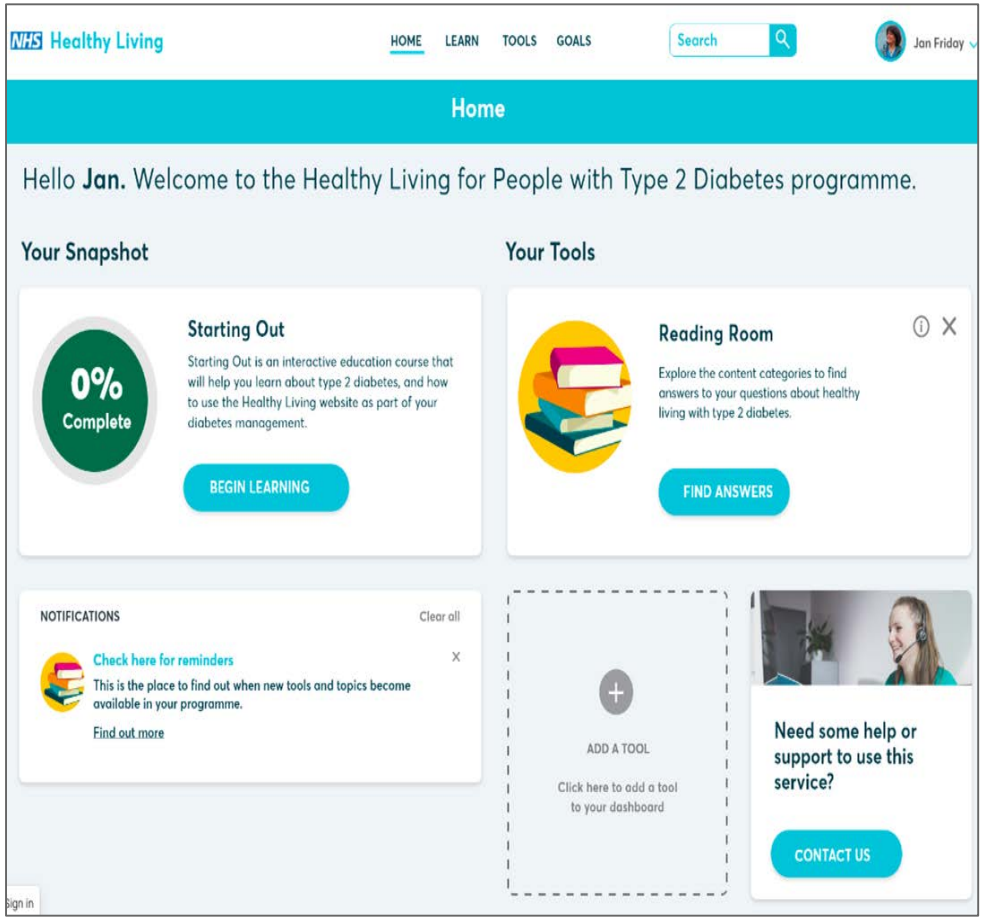

- As the product nears completion, physical testing begins which we are incorporating into our roll out phases
- Readiness assessment to be completed by all STPs
- Monitoring roll out via the regions, and learning lessons from DPP
- Developing a narrative around the product to encourage uptake
- Working with EEAs to ensure that roll out methods are truly tested

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In Summary

- *Healthy Living provides the opportunity for whole population impact*
- *It is free for CCGs and patients to access*
- *Roll out begins in Summer 2020*
- *You can help prepare you area for roll out by:*
- *Thinking about how you will offer patients choice*
- *Considering the best way to inform HCPs about the programme*
- *Working with national and regional leads on a roll out plan*

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