



Empowering patients: modernising the treatment of Type 2 diabetes



Foreword

Diabetes is one of the most prevalent global conditions, costing over £1 trillion annually to treat. Around one in 11 adults worldwide now has diabetes, with diabetic complications being responsible for the vast majority of its costs - causing heart disease, blindness, kidney disease, limb amputation and early death.

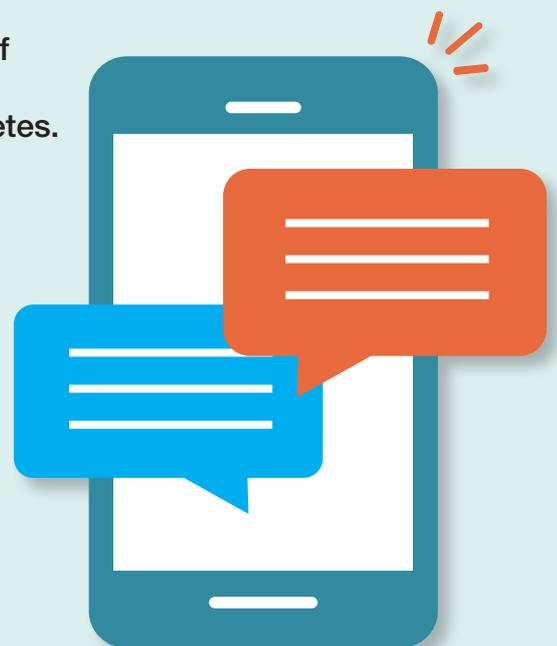
In order to help reduce the rapid increase in numbers of people with diabetes, through both prevention and reversal, new technologies must be deployed to augment the traditional face-to-face doctor-patient method of consultation in hospital or primary care settings, allowing more patients to be managed at once. The use of smartphone app technology connecting patients to highly trained diabetes coaches is a cutting-edge example of this. Results show how effective such technology can be in not only reversing pre-diabetes but also in allowing people with established Type 2 diabetes to go into remission and off all diabetes medication.

Health and social care secretary, Matt Hancock, has made no secret of his strong belief in the role technology has to play in tackling chronic diseases. Prevention is one of his key NHS priorities for the coming years and coincides with more and more people now realising they have the ability to take control of their Type 2 diabetes.

As a physician with many years of experience in treating patients with diabetes, I know how empowering this form of treatment is. I firmly believe that this is the way forward in helping reduce the long-term complications of Type 2 diabetes.



Dr Roger Henderson
GP and UK medical director at
Liva Healthcare



Introduction

Humanity is at the heart of great healthcare. A skilled, sensitive practitioner can make all the difference to recovery when you are ill. This is particularly true of chronic, complex and intractable conditions such as Type 2 diabetes which people find difficult to manage on their own.

Can digital healthcare play a part in this area of medicine where human relationships are still critical to success?

This report explores that proposition from the perspective of patients, doctors and healthcare professionals using new data drawn from a survey of both healthcare professionals and people living with Type 2 diabetes. What's fascinating is the challenges that this research shows many patients experience with Type 2 diabetes: nearly two thirds find it hard to eat well, a quarter worry about passing on bad habits to their children, and nearly half of all those with Type 2 diabetes have hidden their illness from family, work or friends.

In the same research, we can see that doctors are already working flat out to help those with the disease: 59 per cent say Type 2 diabetes takes up more of their time than dementia, obesity and heart disease put together. And, as about 9 per cent of the NHS budget is spent managing diabetes and its vast array of complications, healthcare professionals fear that it is only a matter of time before funds will run out altogether.

Yet it has been proven that with early intervention and lifestyle changes, many cases of pre-diabetes and Type 2 diabetes can be reversed, with the number of complications reduced in other cases.

We believe that this gap in service provision urgently needs to be bridged with more innovative use of technology that focuses on prevention and reversal, whilst keeping humanity at its heart.

It's time to revolutionise the treatment of Type 2 diabetes.



Simon Pickup
UK managing director at
Liva Healthcare



What is Type 2 diabetes?

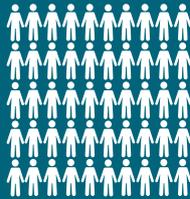
There are currently four million people diagnosed with diabetes in the UK, according to Diabetes UK, with a further one million believed to be undiagnosed.

While about 5-10 per cent have Type 1 – an incurable autoimmune condition - the vast majority have Type 2; when the body's ability to respond to insulin (the essential hormone to transport glucose) slowly diminishes.

This is known as insulin resistance and means that the insulin our bodies secrete isn't as effective in managing our blood sugar levels.

And while there is also a genetic component to Type 2 diabetes with a higher prevalence of Type 2 diabetes in South Asian and Afro Caribbean communities, the majority of cases are preventable and – increasingly – reversible.

The scale of the problem



5 million people in England are at high risk of developing Type 2 diabetes.



1 in 10 of the UK population will develop Type 2 diabetes by 2034 if these trends persist.

Yet, we've never known more about how to treat diabetes. From being a lifelong condition, which was treated with medication in increasing doses, many cases of Type 2 diabetes are now seen by doctors and patients as reversible through lifestyle.

That patients are determined to improve their health is no surprise. Diabetes symptoms are complex and unpleasant including feeling thirsty all the time or needing to urinate more than normal, fatigue or weight loss, itching around the genitals, blurred vision and cuts or wounds taking longer than normal to heal.

But the real dangers lie in the permanent damage that can result from untreated or undiagnosed diabetes which include permanent nerve damage to organs such as the kidneys or in limbs which may lead to amputation. Blindness is another risk. Diabetes can lead to coma and death.

Crucially the cost of diabetes is not just individual. The rise in numbers of patients with Type 2 means about £8.8 billion a year is spent by the NHS on treatment. One in six of all people in hospital have diabetes. While diabetes is often not the reason for admission, they often need a longer stay in hospital, are more likely to be re-admitted and their risk of dying is higher.

It's against this backdrop that Liva Healthcare decided to commission a survey through Census wide of 100 healthcare professionals and 2,000 patients with Type 2 diabetes, in order to establish concerns about the management and treatment of this chronic disease.

The stigma of a lifestyle disease

While most illnesses are seen as bad luck or unavoidable, Type 2 diabetes is regarded increasingly as something we should all be more aware of - and able to prevent thanks to its close link to weight gain and obesity. No wonder then that it may be perceived as something to be ashamed of.

So perhaps it's not surprising that in the survey, when patients were asked if they had ever hidden their condition from anyone, almost half (46 per cent) admitted they were embarrassed by the illness with a quarter (23 per cent) hiding it from their employer. A fifth had hidden their diagnosis from a friend and 9 per cent had kept it from their partner. Some had even avoided sharing their condition from parents and children (8 per cent) or siblings (5 per cent).

This marks a clear historical change. Older Type 2 diabetics admitted they were less likely to hide their condition, with 78 per cent of those aged 55+ saying they have never hidden their condition as opposed to just 34 per cent of 16-24 year olds and 44 per cent of 25-35 year olds. Perhaps this suggests that younger people believe they are more knowledgeable about Type 2 diabetes than older generations and are more embarrassed at the label it carries. No wonder, 63 per cent revealed they were stressed or worried about their health with 65 per cent concerned about healthy eating. Perhaps unsurprisingly a quarter (24 per cent) were concerned about passing on unhealthy habits to their children.

There's a clear gender split here too with females (66 per cent) more likely than males (59 per cent) to be concerned about stress/worry about health, and females (27 per cent) more concerned about passing unhealthy habits to their children than men (20 per cent) - showing that the idea of the female as the gatekeeper to family health is still credible.

Type 2 diabetes is also considered a uniquely awkward disease to manage thanks to the need for daily blood tests to measure blood sugar levels for those whose disease has progressed. This may be another reason for levels of stigma; people are embarrassed by their own fear of needles and/or blood. Nearly two-thirds (38 per cent) of patients admitted finding blood tests a challenge.



46% of patients embarrassed by the illness

Hiding the condition:

23% from employer

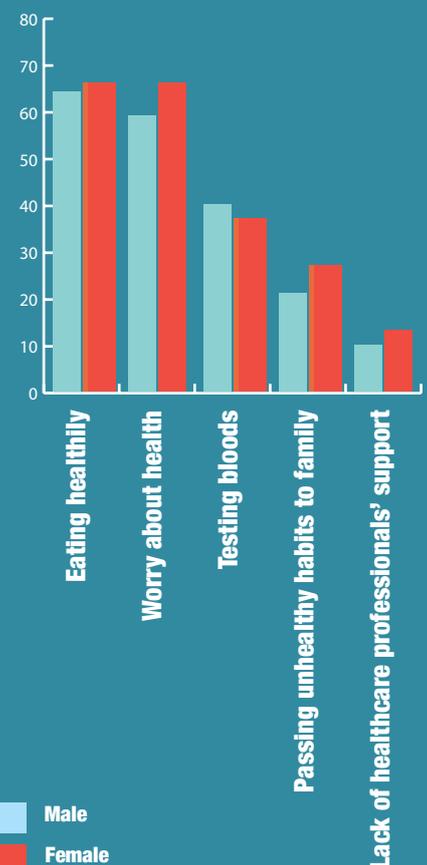
20% from a friend

9% from a partner

8% from parents and children

5% from siblings

Challenges

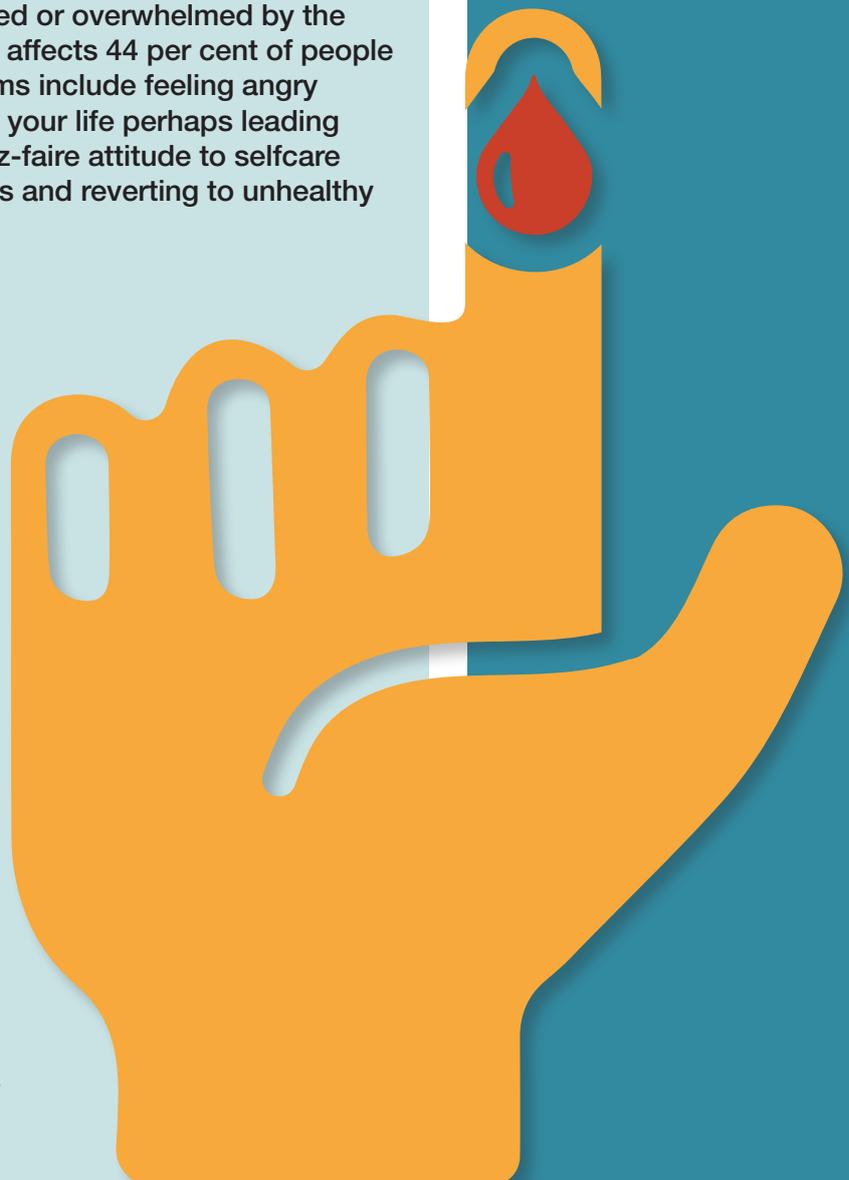


Interestingly, research supported by Sanofi found that millennials were more uncomfortable with the management of the illness. They were more concerned about finger-pricking to measure blood sugar levels than non-millennials. And they dreaded taking insulin more too.¹

No wonder then that so many newly diagnosed patients report that diagnosis with Type 2 diabetes is itself challenging and overwhelming. There are the day-to-day concerns over learning to monitor blood sugar levels and avoiding the highs and lows which can occur without good management that cause symptoms such as fatigue or thirst. But also, patients must overhaul their lifestyle in detail: eating healthily, managing stress, taking regular exercise, lowering weight if necessary, giving up smoking and getting plenty of rest. No wonder some patients find it hard to follow the new rules.

Diabetes UK warns about the condition of diabetes burnout² – when you may feel frustrated, defeated or overwhelmed by the condition. It's estimated that burnout affects 44 per cent of people with diabetes (Types 1 or 2). Symptoms include feeling angry and as though diabetes is controlling your life perhaps leading to poor decision making and a laissez-faire attitude to selfcare such as missing routine appointments and reverting to unhealthy behaviours.

44% of people with Type 1 and 2 diabetes are affected by burnout



¹ <http://www.news.sanofi.us/2014-10-15-New-Survey-Finds-Differences-In-Attitudes-About-Diabetes-Based-On-Age>

² <https://www.diabetes.org.uk/Guide-to-diabetes/Life-with-diabetes/Diabetes-burnout>

Cited causes of Type 2 diabetes:

26% unhealthy meal choices

18% obesity

15% lack of exercise

The blame game

The most important risk factor for developing Type 2 diabetes is being overweight or obese (a BMI above 25). Being overweight can make it harder for the body to produce enough insulin or use it properly.

The survey's findings suggest that most individuals are aware of this connection with unhealthy meal planning choices being cited by over a quarter (26 per cent) as the single root cause of the disease. A further 18 per cent blame obesity and 15 per cent cite lack of exercise.

No respondents mentioned family history however, and genes matter. Scientists have not yet isolated which genes are involved, but if close family members have Type 2 diabetes, a person's risk of developing the disease is higher - although not inevitable. In these cases, awareness of lifestyle factors is even more crucial.

Despite extensive information campaigns by the NHS and charities, nearly 20 per cent think that there is no root cause of Type 2 diabetes and that lack of support from health services may be a factor. Worryingly, some simply don't know. This suggests we have a real need for more education even among those who already have the disease.





Healthcare professionals

53% would prefer to help patients lose weight or get fit than prescribe medicine

44% think lifestyle changes can be as effective as medicine



Patients

42% would prefer combination of medication and lifestyle change

39% would choose lifestyle changes to diet and exercise

15% would stick with medicine



Modern management

Traditional Type 2 diabetes management involves prescribing medication which will lower blood sugar levels, such as the most commonly prescribed drug metformin³.

The number of these prescriptions has risen sharply in the past few years, increasing by 80 per cent over the past decade, compared with a 46 per cent rise across all primary care prescribing, according to an NHS Digital report published in August 2017.

The report - Prescribing for Diabetes: England 2006/07 to 2016/17 - shows that in the previous year the number of items prescribed for diabetes grew more than twice as fast (5 per cent) as the overall prescriptions across primary care (2 per cent).

Looking across the whole of the last decade, prescribing of metformin for diabetes has more than doubled, from 9.4 million items in 2006/07 to 20.8 million items in 2016/17.

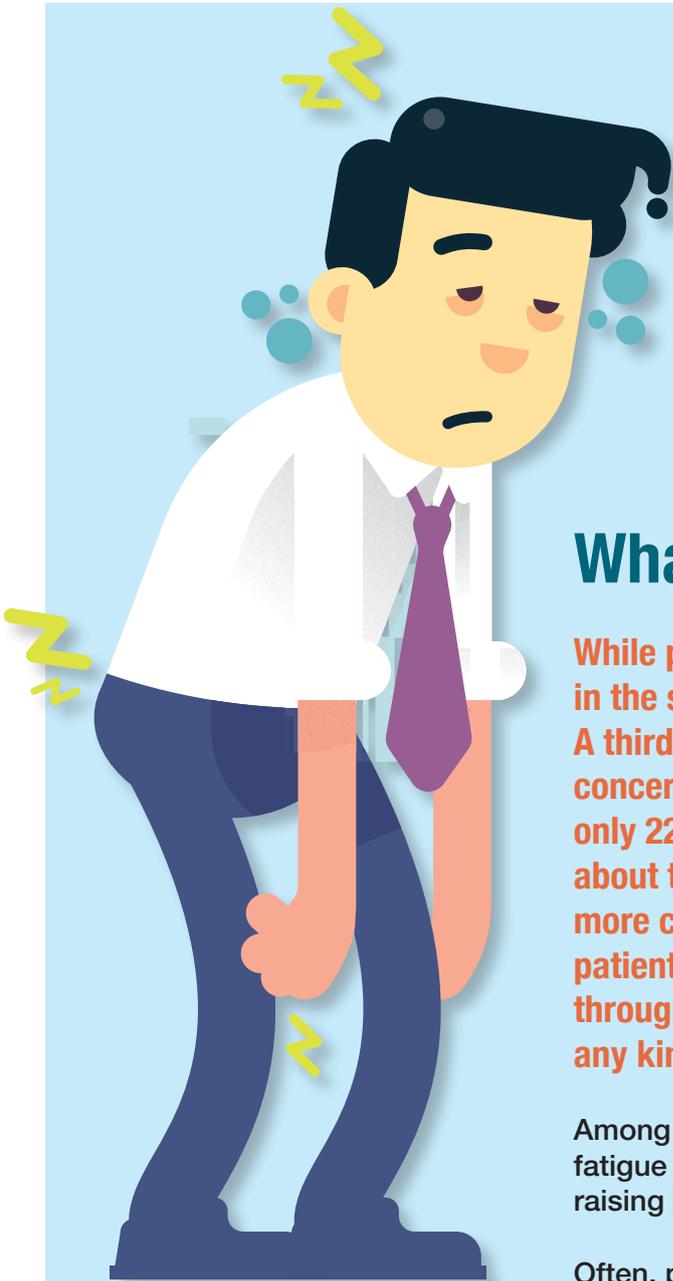
Yet the movement towards encouraging patients to change their lifestyle as well as take medication is becoming more mainstream.

Among the healthcare professionals surveyed, 53 per cent would prefer to help patients to lose weight or get fit than prescribe medication, with 44 per cent revealing that they think lifestyle changes have the potential to be as effective as medication.

This chimes with a change in public attitudes too. Among existing patients, 42 per cent say they would prefer to use a combination of medication and lifestyle changes to manage their condition. 39 per cent would choose lifestyle changes to diet and exercise as their first line of treatment and only 15 per cent of patients would stick with medicine.

This sea change in attitudes among professionals and patients is fascinating and very heartening - especially given the current cost to the NHS of medication.

³ <https://digital.nhs.uk/news-and-events/news-archive/2017-news-archive/increase-in-prescriptions-for-diabetes-exceeds-rise-in-overall-prescribing>



What patients worry about most

While patients admit to being concerned about healthy eating in the survey, that's not a message their doctors always get. A third of healthcare professionals believe symptom control concerns their patients with Type 2 diabetes the most, with only 22 per cent saying that their patients were concerned about the link to obesity. This suggests that there is room for more conversations about reversing diabetes. Perhaps, some patients do not see how their condition could be reversed through significant weight loss or feel disempowered to make any kind of permanent change.

Among the specific symptoms which patients complained about, fatigue was the cause of most concern with a third (32 per cent) raising it with their doctor.

Often, patients don't associate this with Type 2 diabetes though; they think fatigue is age or lifestyle related. This is a good example of the need for regular specialist advice as symptoms such as persistent tiredness may be a sign that patients are not managing their condition and need to do more.

Even basic lifestyle changes can be helpful. According to a report,⁴ based on data from the Framingham Heart Study (FHS) – and published in the journal *Clinical Obesity* in January 2017, insulin resistance may be modulated with modest levels of physical activity. The researchers based in Boston, USA, found that increased levels of physical activity (below what is required for weight loss) were associated with decreased insulin resistance as well as biomarkers of inflammation.

⁴ <https://onlinelibrary.wiley.com/doi/abs/10.1111/cob.12177>



Type 2 diabetes and the NHS

20% of doctors carry out more than 50 consultations a day - double the advised amount

59% of that time is spent dealing with Type 2 diabetes

71% of health care professionals believe the NHS can only continue to manage current level of Type 2 diabetes for another 10 years



UK doctors are notoriously overworked with the average GP seeing 41 patients a day, according to a survey of 900 doctors by the GP magazine *Pulse*. It reported⁵ that one in five family doctors carries out more than 50 consultations a day, twice the number recommended under European safety guidance.

Now, Liva's research shows that nearly two-thirds (59 per cent) of that time is spent on dealing with Type 2 diabetes. In fact, Type 2 diabetes takes up more time for healthcare professionals than dementia, obesity and heart disease put together.

Given the time spent on treating Type 2 diabetes, it's no wonder that healthcare professionals are concerned that the current level of expenditure is unsustainable. 71 per cent of healthcare professionals believe the NHS can only continue to manage the current level of Type 2 diabetes care for another 10 years at most - with only one per cent suggesting that we can carry on spending at this level longer.

This is a clear area where finding innovative ways to support general practice would have significant time and financial benefits for the NHS. The NHS has already made it clear that it is keen to develop its digital strategy, given the important cost-saving implications. Matt Hancock, the Secretary of State for Health, laid out a vision⁶ for the NHS embracing technological change in one of his first speeches.

He said: "We have set our sights on the NHS being the most cutting-edge system in the world for the use of technology to improve our health, make our lives easier, and make money go further, harnessing the amazing explosion of innovation that the connection of billions of minds through digital technology has brought to this world."

Most healthcare professionals agree with that approach - 68 per cent say app-based monitoring and communications would help in daily treatment of Type 2 diabetes and 40 per cent approve of the idea of video and/or text consultations. Technology has a huge part to play in the modernisation of Type 2 diabetes treatment leading to early intervention, less medication and more personalised treatment.

⁵ <https://www.thetimes.co.uk/article/gps-seeing-too-many-patients-put-safety-at-risk-hspw3jqqr>

⁶ <https://www.gov.uk/government/speeches/my-vision-for-a-more-tech-driven-nhs>

Crisis aversion

There's little doubt that Type 2 diabetes is a global scourge, with numbers predicted to keep rising.

Traditional methods of treating and controlling it are expensive, carry often unpleasant side-effects and fail to address the underlying cause of the illness. Unless the UK and other countries find alternative, more holistic and cost-effective ways to tackle Type 2 diabetes, it is possible health budgets will be used up on this condition and its complications.

But as this report shows, attitudes within medicine and the public at large are changing with more people recognising the part they can play in avoiding or reversing pre-diabetes and Type 2 diabetes in its early stages. Moreover, many are opting to use non-pharmaceutical methods to take control of their lifestyles and health.

With more education on the causes, symptoms and solutions for Type 2 diabetes and with innovative use of technology, it's possible that this crisis could yet be averted.

The Liva Healthcare programme is a good example of how digital healthcare can be combined with a human interface to help patients reclaim their lives and health.



Case study



“Any doctor would agree, that if we can get people to take charge of their lives - manage their weight, be more physically active, follow a healthy nutrition routine - there are benefits across the board health-wise. At AXA PPP, we very conscious of putting the customer at the heart of what we do, and this programme really helps us do that.”

**Chris Tomkins,
Founder & chief operating officer
of Proactive Health at AXA PPP
healthcare**



The private insurer's perspective

“The Liva lifestyle coaching platform helps us to deliver empathy plus expertise”

“At AXA PPP healthcare we recognise the tremendous benefit health coaching can bring in supporting someone who wants to make healthier change but doesn't know how or needs the ongoing motivation,” says Chris Tomkins, founder and chief operating officer of Proactive Health at AXA PPP healthcare.

“We were already using a telephonic model for our corporate clients wishing to support their employees with coaching. We've been making this available as part of their wellbeing programme accessed via our Proactive Health Gateway digital engagement platform. And now, by introducing the Liva programme, which offers 24/7 support, we've further enhanced their customer journey as they're no longer restricted by finding a time that suits both them and the coach.”

Tomkins added “The app helps us to deliver empathy plus expertise as required – and at high volume. We've been monitoring uptake and members are clearly finding it easy to navigate and go online for coaching. Alternatively, they can book telephonic support at pre-booked times if preferred.”

Client-coach relationships are cemented with an initial assessment in the employer's office to establish key biometrics and decide on goals. At the end of the process – usually after a year – biometrics can be measured to support them on to the maintenance stage of their journey.

“It's good to sit down where possible,” says Tomkins, “go through what the client has achieved and reinforce the benefit of their new behaviours. Changing behaviour can be hard but with the right support they can find it empowering, leading to greater confidence, energy and self-esteem. There's no doubt that the one-to-one human contract established and supported via the app can play a big part.”

Tomkins adds that benefits of using the Liva lifestyle coaching platform for AXA PPP clients are broader than managing a specific condition such as Type 2 diabetes.

“Any doctor would agree,” he says, “if we can get people to take charge of their lives – manage their weight, be more physically active, eat sensibly – there are benefits across the board health-wise. At AXA PPP, we very conscious of putting the customer at the heart of what we do and this programme really helps us do that.”

Case study



“I liked using my smartphone to log my exercise and food.”

Robert Robertson

The patient's perspective

“You can get into a routine with a diet and exercise, but it helps to have support”

Sixty-one-year-old Robert Robertson is a retired A&E doctor who now lives in North Yorkshire. He used the Liva Healthcare programme through his local NHS surgery, as part of the of the Healthier You: NHS Diabetes Prevention Programme digital pilot.

“I had no idea anything was wrong with me,” says Robert, “until a routine blood test in January during monitoring for hypertension showed that I had raised levels of HbA1c.”

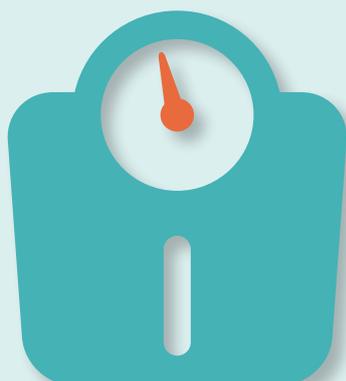
HbA1C or glycated haemoglobin is made when glucose (sugar) in the body sticks to red blood cells. A high level of HbA1c means the individual has too much sugar in their blood and is an indicator of Type 2 diabetes.

“I spoke to a nurse at my surgery and she told me I could join a pilot scheme using the Liva programme to see if I could get my body working properly again and reverse my pre-diabetes.”

Looking back, Robert admits, his high level of HbA1c hadn't come entirely out of the blue. “There had been a raised random blood glucose test a few years ago. And my sister who is nine years older than me had developed Type 2 diabetes, while my brother has had Type 1 for a long time.”

More critically, Robert had just retired and slipped out of his healthy habits - becoming overweight as a result.

“I used to weigh about 73-74kg but that had gone up to 81-82kg. At 176cm tall, I wasn't obese but I had developed a tummy.”



Case study

“I’ve found it very useful to keep focused towards my goal. I’d recommend it to others. I’ll go on using it, I don’t want to slide back.”

“I now probably cycle for four hours a week and walk for three.”

“Recording it makes the difference it keeps it in your mind and motivates you.”

“I’ve found it very useful to keep focused towards my goal. I’d recommend it to others. I’ll go on using it, I don’t want to slide back.”

Robert Robertson

Results:

Eight months later and Robertson has lost about 15kg taking him close to his target weight of 65kg. His HbA1c is back within the healthy range and as a bonus, his blood pressure readings are consistently lower too.



Robert had been a cycling enthusiast and enjoyed long walks but more recently his activity had been reduced to “doing things around the house. I was snacking a lot too on biscuits and cakes. Things creep up on you.”

Faced with the possibility of Type 2 diabetes, Robertson was only too pleased to try the self-management approach rather than medication.

“I liked using my smartphone to log my exercise and food. I enjoyed talking to my coach Amy as well. She helped me establish a plan and stick to it, especially the exercise.”

Robert set a target of one hour’s cycling a week plus two hours of walking, and soon found himself exceeding that. “I now probably cycle for four hours a week and walk for three.”

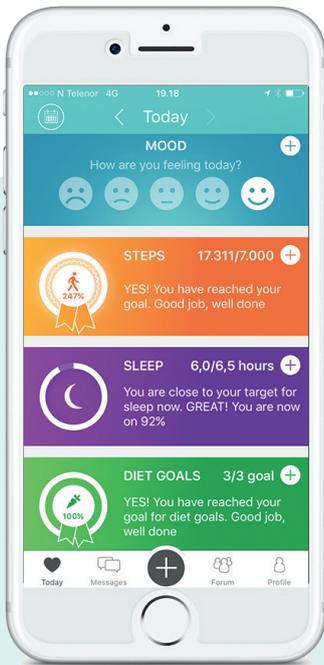
He adjusted his diet, moderating biscuits, sweets and white bread and snacking on fruit and vegetables if necessary.”

“Recording it makes the difference,” he points out, “it keeps it in your mind and motivates you.”

Amy supported that with texts once a week or so to support Robert and keep him on track.

Eight months later and Robert has lost about 15kg taking him close to his target weight of 65kg. His HbA1c is back within the healthy range and as a bonus, his blood pressure readings are consistently lower too.

“I’ve found it very useful to keep focused towards my goal. I’d recommend it to others. I’ll go on using it, I don’t want to slide back.”



The Liva Healthcare programme

Combining the best in digital technology with support from top quality health coaches, the Liva Healthcare programme acts like a personal lifestyle coach in the pocket of a patient. With an app interface, patients use it to set goals, to store and manage data such as blood sugar levels and weight, and to help them develop good habits which can be sustained in the long term. Designed to be so intuitive that anyone aged from five to 95 can work it, the app can help guide a patient, encouraging and monitoring their progress via a traffic-lights system which encourages compliance.

The app has already been used by 140,000 patients and we're supporting companies such as AXA PPP healthcare to help deliver their coaching pathways as part of their workplace wellbeing services.

In addition, Liva is working together with AXA PPP healthcare as part of a pilot scheme of the Healthier You: NHS Diabetes Prevention Programme. The pilot is taking place in Humber Coast and Vale sustainability and transformation partnership (STP) and North East London STP.

But what makes the Liva programme different to other diabetes management tools – and key to its success – is the platform's integration with AXA PPP healthcare's health coaches.

Every patient who uses the app begins with an initial consultation with a highly trained coach, in person. Afterwards, coaching is ongoing via text or video consultations and the health coach can be accessed every day. A forum connects users for peer-to-peer support.

This unique, bespoke approach helps to empower and support clients as they learn to manage their own condition, taking the pressure off the health service and turning patients back into people.



