Collaborative working within a PCN diabetes clinic to help prevent long-term cardiometabolic complications

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This case study examines a 51-year-old lady of African-Caribbean ethnicity with long-standing type 2 diabetes who presented at the diabetes clinic with worsening glycaemic control, weight gain and recurrent genitourinary symptoms. It showcases the benefits of embracing a holistic care approach to diabetes management beyond glycaemia, which is made possible through a specialist diabetes service funded at the Primary Care Network level. The study demonstrates how this holistic approach can improve blood glucose, weight and cardiovascular risk, whilst also tackling the concerns that are most important to the patient.

Primary care is ideally positioned to identify people at risk of developing type 2 diabetes and to ensure cardiometabolic protection is provided in a timely and individualised manner to those already diagnosed. A study by Lustman et al (2016) was the first to conclude that high interpersonal continuity improved processes and health outcomes for people with diabetes.

Best Practice in the Delivery of Diabetes Care in the Primary Care Network (Ali et al, 2021) was developed by a multidisciplinary team of healthcare professionals and is widely recognised as the gold-standard framework for Primary Care Networks (PCNs) to enhance their diabetes services (Kanumilli, 2021). It recommends formation of a Diabetes Support Team (DiaST) as a new multidisciplinary second tier of care within the PCN, which facilitates collaborative working and interfaces between the community and hospital diabetes teams. The HIPC (Holistic Patient Centred Care) PCN, in North Staffordshire, has used this framework as its template for diabetes care successfully for 2 years.

The PCN-funded Specialist Diabetes Service is based within a local GP practice and covers five surgeries in an area of high deprivation and low income. Consultations are extended to 30 minutes, with full access to medical records, and patients are treated in a familiar environment, by the same clinician, who provides a holistic rather than a glucocentric approach to diabetes care. This approach has high patient satisfaction and has improved multiple health outcomes and quality of life, and should help to prevent long-term complications in the future.

Case presentation

DA, a 51-year-old lady of African-Caribbean ethnicity, has a long-standing history of type 2 diabetes following previous episodes of gestational diabetes. She presented at the PCN diabetes clinic with worsening glycaemic outcomes, weight gain and recurrent genitourinary symptoms.

Additional concerns included hypertension and low vitamin D levels. Her fasting lipid profile was within acceptable limits but suggested room for optimisation.

HbA_{1c}: 65 mmol/mol (previously 50 mmol/mol).
Weight: 93.2 kg, **BMI:** 36.2 kg/m^2.
Blood pressure: 150/80 mmHg.
Fasting lipids: **Total cholesterol** 4.4 mmol/L; **LDL cholesterol** 2.4 mmol/L; **HDL cholesterol** 1.38 mmol/L; **non-HDL cholesterol** 3.0 mmol/L; **triglycerides** 1.4 mmol/L.
Urinary ACR and eGFR: Normal.
Urea and electrolytes: Normal.

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Article points

1. Formation of a Diabetes Support Team (DiaST) within a Primary Care Network is recommended, to facilitate collaborative working and interfaces between community and hospital diabetes teams.
2. Such an approach allows identification of treatment gaps and implementation of timely, coordinated interventions by the multidisciplinary team within primary care, whilst maintaining a shared holistic approach to cardiovascular risk reduction and improving quality of life.
3. This can help reduce the risk of long-term complications, alleviate disease burden and improve future health outcomes for individuals with diabetes.

Key words

- Diabetes Support Team (DiaST)
- Holistic care
- Primary Care Networks
- Cardiovascular disease
- Type 2 diabetes
- Women's health

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Best practice in the delivery of diabetes care in the Primary Care Network

The restructuring within CCGs to develop Primary Care Networks (PCNs) gives an opportunity to strengthen joined-up specialist care and provide a diabetes service addressing the holistic needs of people with diabetes. This guideline gives recommendations on the development of diabetes care delivery at the PCN level.

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Liver function tests: Normal.
Vitamin D: 27 nmol/L (low).
Fundoscopy: No retinopathy.
Past medical history: Gestational diabetes in 2000 and 2002. Hypertension. Recurrent vaginal thrush and cystitis.
Medications: Lercanidipine 20 mg; candesartan 4 mg, atorvastatin 10 mg; metformin 1 g, gliclazide 80 mg, dapagliflozin 10 mg daily.
Family history: Father and siblings all have type 2 diabetes.
Lifestyle: Non-smoker, no alcohol.

Case review

DA presented with a 25-year history of type 2 diabetes experiencing worsening glycaemic control, persistent vaginal candidiasis and cystitis for 3 years, and suboptimal blood pressure. She had been taking dapagliflozin intermittently, which may have been contributing to her persistent infections and worsening metabolic values. Previous screening to exclude sexually transmitted disease and repeated vaginal swabs confirmed extensive candidiasis, treated multiple times without success.

DA expressed a desire to "feel better" and "to have better sugars again."

Cardiovascular risk

The increased risk of type 2 diabetes and cardiovascular complications among African-Caribbean women is a well-documented health disparity. The Southall and Brent (SABRE) study, 1988–1991, identified a significantly higher prevalence of both type 2 diabetes and hypertension in people of African-Caribbean descent, particularly women (McKeigue et al, 1991). This is thought to contribute to an increased risk of stroke and cardiovascular disease (CVD) at an earlier age compared to other ethnic groups.

DA's 10-year risk of CVD, estimated using QRISK3, was at 9.7% compared to 1.9% for a healthy person of the same age, sex and ethnicity.

Consultation 1

Vaginal infection

It was essential to prioritise DA's personal health concerns. A recent high vaginal swab (HVS) confirmed a significant growth of *Candida albicans*. Individuals with diabetes are at a higher risk of genital infections, with Candida being the most prevalent. Furthermore, SGLT2 inhibitors promote glycosuria, leading to an altered genital microflora, which can contribute to infection development (Unnikrishnan et al, 2018).

While Candida infections do not necessarily require discontinuation of an SGLT2 inhibitor, a shared decision-making approach led DA to pause dapagliflozin, as it was negatively impacting her quality of life. The infection was treated with clotrimazole 10% intravaginal cream, with advice that this dose could be repeated 1 week later if required.

Vaginal atrophy and menopause

DA was post-menopausal and disclosed that she had experienced years of vaginal atrophy, dryness and irritation. Addressing this side-effect might enable DA to finally tolerate an SGLT2 inhibitor, helping to reduce her CVD risk in the future.

Topical estrogens are used to treat the symptoms of vaginal atrophy related to estrogen deficiency post-menopause. Estriol 1 mg/g cream was prescribed at one application vaginally at night for 3–4 weeks, and twice weekly thereafter to help treat her vaginal atrophy and reduce the risk of repeated vaginal infections.

Metformin optimisation

DA's metformin dosage was optimised to 2 g daily to help improve her glycaemic control. Metformin does not increase risk of weight gain or hypoglycaemia (BNF, 2025), and has the added benefit of lowering CVD mortality risk (Maruthur et al, 2016).

Decreased vitamin B12 levels are a common side-effect of long-term metformin treatment, and periodic testing is recommended (MHRA, 2022).

Dietary advice

Lifestyle factors regarding diet were revisited and supporting literature from NHS England (2023) was supplied: *Healthier eating: African, Caribbean, and South Asian Cuisines*. DA had attended a structured education programme, DESMOND, locally but had found it unhelpful as she felt that, culturally, it did not meet her dietary needs, highlighting a significant health inequality.

DA agreed to a referral to our specialist PCN Dietitian for online, individualised nutritional support.

Glucose monitoring

Capillary blood glucose monitoring was

encouraged to help DA feel more connected to her diabetes, minimise hypoglycaemia risk, support food choices and portion sizing, and help assess the glycaemic outcomes from reducing her intake of refined carbohydrates and saturated fats.

Blood glucose monitoring may help improve glycaemic control in the short term (Machry et al, 2018). NICE (2022) NG28 also recommends blood glucose self monitoring when taking oral medications that increase hypoglycaemia risk.

Vitamin D deficiency

DA was found to have low vitamin D levels, which may have contributed to her feeling unwell in addition to adversely impacting bone health. Vitamin D deficiency has also been associated with obesity, insulin resistance, impaired glucose metabolism and reduced insulin secretion (Davis, 2011).

Dietary strategies were reviewed in the clinic, and colecalciferol 50 000 units once weekly was prescribed for 6 weeks. The matter was further explored during the PCN Dietitian's review, where tailored nutritional advice was provided.

Obesity management and gliclazide review

Obesity, particularly when associated with increased central abdominal adiposity, is a risk to cardiometabolic health, as it causes insulin resistance and beta-cell dysfunction (Klein et al, 2022). People of African-Caribbean heritage are more prone to central adiposity, and have increased cardiometabolic risk at a lower BMI threshold of 27.5 kg/m^2, compared with those of white ethnicity. The NICE (2025) NG246 obesity management guideline advises that, at a BMI of 35 kg/m^2 or more, health risks are "assumed" and no measurements of central adiposity are required.

Although DA's weight gain was not her primary health concern, obesity management is an important clinical consideration to reduce future metabolic health risks. In the prevention and management of type 2 diabetes, managing weight by addressing lifestyle, making sustainable changes and selecting appropriate pharmacological treatments is essential (Davies et al, 2022).

GLP-1 receptor agonists are indicated for the treatment of type 2 diabetes and obesity. In addition to improving glycaemic control and reducing weight, they have positive effects including lowering blood pressure, postprandial lipidaemia and inflammation (Westermeier and Fisman, 2025).

Gliclazide had been added to DA's treatment regimen 12 months previously to help lower her HbA_{1c} when there was a national shortage of GLP-1 receptor agonist treatments. It was explained that gliclazide may be contributing to DA's weight gain by increasing her appetite, as well as increasing her risk of hypoglycaemia, through its glucose-independent effects on insulin secretion.

The team discussed replacing gliclazide with the GIP/GLP-1 receptor agonist tirzepatide, which increases insulin sensitivity and secretion, suppresses glucagon secretion and delays gastric emptying. At the time, there were ongoing national shortages of semaglutide; therefore, tirzepatide was deemed an appropriate treatment choice. An information booklet was provided to help DA make an informed, shared decision on her treatment. She remained on gliclazide whilst reviewing the booklet.

Blood pressure management

Hypertension is the leading modifiable risk factor for heart and circulatory disease in England, whilst one in nine cardiovascular deaths is associated with a high BMI (British Heart Foundation, 2025). Hypertension is a contributing risk factor for CVD and an important target in CVD prevention (Karmali and Lloyd-Jones, 2017).

DA's home blood pressure readings indicated suboptimal treatment. In accordance with the NICE (2023a) NG136 hypertension guideline, DA was already taking the maximum dose of lercanidipine, a calcium channel blocker (the first-line choice of treatment for African-Caribbean people), so she agreed to increase the her dose of the angiotensin receptor blocker candesartan from 4 mg to 8 mg, to optimise blood pressure management. A target below 135/85 mmHg was agreed, with further home BP measurement planned to assess progress.

Lipid management

Atorvastatin 20 mg is recommended as the preferred high-intensity statin to use for the primary prevention of CVD in people at risk (NICE, 2023b), as it is both clinically and cost effective. DA had been taking 10 mg daily and, with her

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A printable guide to blood pressure classification and targets in diabetes.

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agreement, this was increased to the recommended 20 mg daily to further minimise CVD risk.

A referral was made to the PCN Clinical Pharmacist to follow up and monitor the effects of both antihypertension and lipid-lowering therapies.

Consultation 2

Two weeks later, DA's home blood pressure readings were improving and contact with the Clinical Pharmacist was ongoing. Regular glucose monitoring helped DA re-engage with her glycaemic management and discover that a reduction in gliclazide dose, to 40 mg once daily at breakfast only, was required due to occasional episodes of hypoglycaemia in the evenings. Advice on hypoglycaemia management was reviewed.

DA was pleased that her vaginal symptoms had resolved after starting estriol cream for vaginal atrophy, with promising results. Most importantly, she felt that her initial health concerns had been effectively addressed, and progress achieved.

DA made an informed decision to commence treatment with subcutaneous tirzepatide at a dose of 2.5 mg once weekly for the next 4 weeks, and her gliclazide was discontinued, thus reducing hypoglycaemia risk.

Correct injection technique using 4 mm needles was explained, with an emphasis on the importance of site rotation (Trend Diabetes, 2023). Possible side-effects of GIP/GLP-1 receptor agonist therapy were outlined, including common gastrointestinal adverse effects. More serious risks, such as pancreatitis and gallbladder disease complications, were discussed, with advice to seek urgent medical attention should any concerning symptoms arise (MHRA, 2024).

Four weeks later, the tirzepatide dose was increased to 5 mg once weekly and dapagliflozin 10 mg daily was successfully reintroduced to further reduce cardiorenal risk, lower blood pressure and potentially help with weight loss. Consultations with the PCN Clinical Pharmacist and Dietitian had taken place and were ongoing. Blood tests were arranged for 8 weeks later.

Results after 8 weeks

HbA_{1c}: Reduced to 49 mmol/mol.
Weight: 90 kg, **BMI:** 35.1 kg/m^2.
Vitamin D: 72 nmol/mol (normal).
Home blood pressure average: 132/79 mmHg.
Lipids: At target.

Conclusion

This case study highlights the importance of identifying treatment gaps and implementing timely, coordinated interventions by the multidisciplinary team within primary care, while maintaining a shared holistic approach to CVD risk reduction and improving quality of life. Such an approach can help reduce the risk of long-term complications, alleviate disease burden and improve future health outcomes for individuals with diabetes. ■

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