

The case for investing in primary care policies in diabetes

This slide deck was developed by The Health Policy Partnership based on a targeted literature review and expert input. It was funded by the European Federation of Pharmaceutical Industries and Associations (EFPIA).







Glossary

Integrated diabetes care is a delivery model in which primary, community and specialist services collaborate in the provision of best-practice care for people with diabetes.

Primary care is the first point of contact for the health system. It involves a wide range of services and professionals, including general practitioners (GPs), nurses and pharmacists.

Secondary care comprises a range of specialist healthcare professionals with specific expertise in a particular condition.

Therapeutic inertia is the lack of timely adjustment of treatment to meet therapeutic targets.



Section 1: Burden of diabetes

Diabetes is highly prevalent and on the rise

Diabetes is **one of the four most common non-communicable diseases** (NCDs) in Europe.¹

Its **global burden doubled** between 1990 and 2017, and the number of diabetes diagnoses has increased since the COVID-19 pandemic.²

Diabetes affects an increasing number of younger people and individuals from disadvantaged groups.

More and more people are being diagnosed with type 2 diabetes at a younger age.³ People with young-onset diabetes are more prone to long-term complications and often experience a more aggressive progression of the disease.⁴

Adults with lower educational attainment are more than twice as likely to have diabetes as those with a higher educational attainment.⁵



 $^{1.} World Health Organization.\ 2022.\ \underline{https://www.who.int/europe/news/item/05-01-2022-noncommunicable-diseases-in-53-countries-who-europe-presents-new-visual-data \\ \underline{tool\#: \text{``:text=NCDs}\%20are\%20by\%20far\%20the,of\%20deaths\%20across\%20the\%20Region}$

^{2.}Lin X, Xu Y, Pan X, et al. 2020. Scientific Reports 10(1): 14790

^{3.}Khan MAB, Hashim MJ, King JK, et al. 2020. J Epidemiol Glob Health 10(1): 107-11

^{4.}Candler TP, Mahmoud O, Lynn RM, et al. 2018. Diabet Med 35(6): 737-44

^{5.} Organisation for Economic Co-operation and Development (OECD). 2020. Health at a Glance: Europe 2020

^{6.} Lascar N, Brown J, Pattison H, et al. 2018. Lancet Diabetes Endocrinol 6(1): 69-80

Diabetes is often diagnosed too late and not managed effectively

- There can be a delay of up to 6 years between the appearance of the first symptoms and diabetes diagnosis. 1 2
- Only 6.5% of people with diabetes meet their treatment targets for glucose, blood pressure and cholesterol.³

Delays and poor management lead to worse outcomes

- Delays in treatment can lead to premature death and lower quality of life, as well as more and earlier complications.⁴
- Complications include eye problems, nerve damage, kidney failure and cardiovascular diseases, including heart attacks and stroke.⁵⁻⁷
- Many people with diabetes experience mental health issues. About 45% experience disease-related distress, 6 and one quarter have depressive symptoms. 8 9

11.Khunti K, Gomes MB, Pocock S, et al. 2018. Diabetes Obes Metab 20(2): 427-37

More than 1 in 3 people with diabetes in Europe remain undiagnosed. 10 People with diabetes can wait for up to 5 years to receive appropriate treatment.11

^{1.}Khaledi M, Haghighatdoost F, Feizi A, et al. 2019. Acta Diabetologica 56(6): 631-50

^{2.}Salinero-Fort MA, Gómez-Campelo P, San Andrés-Rebollo FJ, et al. 2018. BMJ Open 8(9): e020768

^{3.}Stone MA, Charpentier G, Doggen K, et al. 2013. Diabetes Care 36(9): 2628-38

^{4.}Goodall G, Sarpong EM, Hayes C, et al. 2009. BMC Endocr Disord 9: 19

^{5.} Harding JL, Pavkov ME, Magliano DJ, et al. 2019. Diabetologia 62(1): 3-16

^{6.}Dal Canto E, Ceriello A, Rydén L, et al. 2019. Eur J Prev Cardiol 26(2_suppl): 25-32

^{7.} Einarson TR, Acs A, Ludwig C, et al. 2018. Cardiovasc Diabetol 17(1):

^{8.}Porta M, Curletto G, Cipullo D, et al. 2014. Diabetes Care 37(6): 1668-74

^{9.}Ellis JD, Zvandasara T, Leese G, et al. 2011. Br J Ophthalmol 95(9): 1229-33

^{10.}International Diabetes Federation, 2021, IDF Diabetes Atlas - 10th Edition

Poorly managed diabetes costs European countries millions in health spending and lost productivity

- Long-term complications are the biggest driver of costs from diabetes and have the most significant impact on people's lives. In Italy, spending is 20× higher for people with four or more complications than for those with no complications.¹ In Finland, each complication leads to €24,500 more in hospital costs annually.²
- Diabetes can lead to disability, sick days, early retirement and early death, which reduces workforce productivity,^{3 4} and results in lost earnings and tax revenue.⁵
- The cost of diabetes caused by **lost productivity** is estimated to be more than twice as high as direct healthcare costs resulting from managing diabetes-related complications.³



Diabetes incurs more costs to European health systems than cancer

Total direct healthcare expenditure for diabetes (6.6%) is estimated to be higher than that for cancer (4.8%) and neurological disorders (4.4%).⁶

People with diabetes have up to 25% fewer productive life-years than people without diabetes.⁷

^{1.} Williams R, Karuranga S, Malanda B, et al. 2020. Diabetes Res Clin Pract 162: 108072

^{2.}Sund R, Peltonen T, Lehtimäki A-V, et al. 2022. BMC Health Serv Res 22(1): 469

^{3.} Andersson E, Persson S, Hallén N, et al. 2020. Diabetologia 63(12): 2582-94

^{4.}Pedron S, Emmert-Fees K, Laxy M, et al. 2019. BMC Public Health 19(1): 25

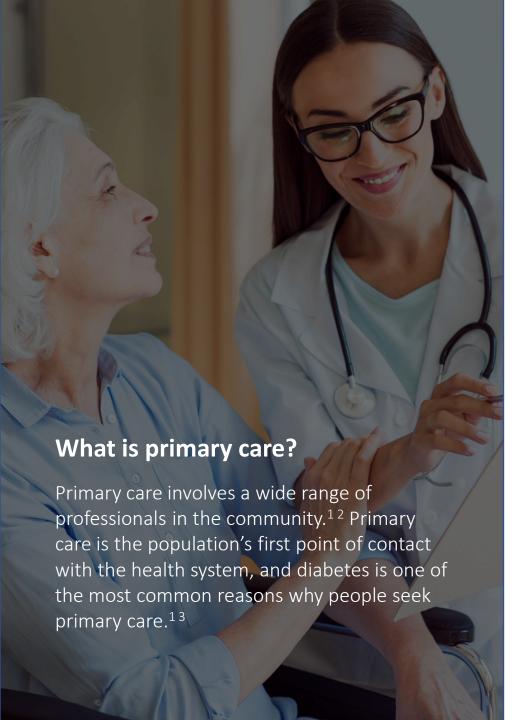
^{5.}Kotsopoulos N, Connolly MP, Willis M, et al. 2022. Diabetes Obes Metab 24(6): 1038-46

^{6.}Schlueter M, Chan K, Lasry R, et al. 2020. PLoS One 15(11): e0241354

^{7.} Tönnies T, Hoyer A, Brinks R. 2021. Diabetologia 64(6): 1288-97



Section 2: The potential benefits of managing diabetes in primary care





Investing in primary care can help tackle current health system weaknesses and reduce the burden of diabetes

Primary care has the potential to improve diabetes management and reduce diabetes-related costs

Access to continuous and regular primary care (every 3 and 6 months) reduces the number of emergency department visits and hospitalisations, and shortens the length of hospital stays.⁴⁻⁷

See case studies in section 4.

^{1.}Organisation for Economic Co-operation and Development. https://www.oecd.org/els/health-systems/primary-care.htm

^{2.}Kozlowska O, Solomons L, Cuzner D, et al. 2017. Br J Gen Pract 67(663): 471-72

^{3.} Finley CR, Chan DS, Garrison S, et al. 2018. Can Fam Physician 64(11): 832-40

^{4.}Ha NT, Harris M, Preen D, et al. 2020. BMJ Open 10(4): e032790

^{5.}Caughey GE, Vitry AI, Ramsay EN, et al. 2016. Intern Med J 46(12): 1430-36

^{6.} van den Berg MJ, van Loenen T, Westert GP. 2015. Family Practice 33(1): 42-50

^{7.}Ha NT, Harris M, Preen D, et al. 2018. Diabetes Res Clin Pract 138: 201-10

Primary care provides an opportunity to make diabetes care more efficient, equitable and holistic



Catching diabetes early in the community



Addressing inequities in diabetes care and outcomes



Facilitating person-centred care

Catching diabetes early in the community

- Primary care professionals are uniquely placed to diagnose diabetes early and manage it effectively in the long term.¹
- This has the potential to alleviate the pressure on overburdened specialist care, reducing long waiting times that are usually required.²
- High-quality primary care services can facilitate prevention, early diagnosis and treatment, reducing avoidable hospitalisations and healthcare costs.¹



^{1.} World Health Organisation, United Nations Children's Fund. 2018. A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals.

^{2.}Mc Hugh S, O'Mullane M, Perry IJ, et al. 2013. BMJ Open 3(8): e003217

Addressing inequalities in diabetes care and outcomes

- Primary care is key to ensuring marginalised groups can access high-quality diabetes care.
- Primary care could help to mitigate health inequalities, as there are fewer barriers than for access to specialist care.¹
- Culturally competent nurses or community health workers could help improve glucose control in minority ethnic communities.²



^{1.} Organisation for Economic Co-operation and Development (OECD). 2020. *Realising the Potential of Primary Health Care*.

2. Terens N, Vecchi S, Bargagli AM, et al. 2018. BMC Endocr Disord 18(1): 31

Facilitating person-centred care

Primary care has the potential to:

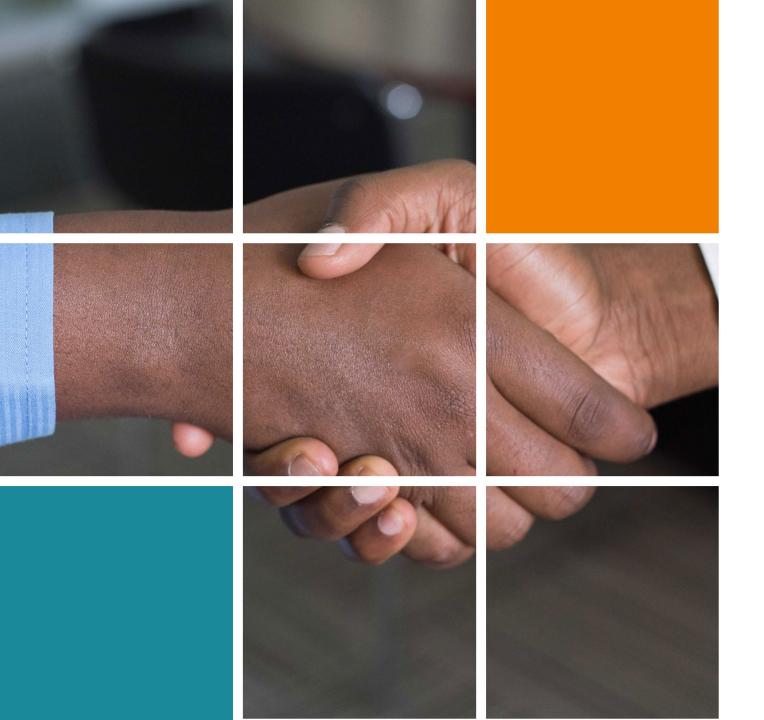
- deliver comprehensive care, addressing the comorbidities that often affect people with diabetes
- promote shared decision-making and mutually agreed care plans, which leads to improved outcomes¹²
- facilitate the appropriate combination of lifestyle and medication changes, which can drastically reduce the likelihood of complications and the risk of early death^{3 4}



^{1.} Harris SB, Cheng AYY, Davies MJ, et al. 2020. Person-Centered, Outcomes-Driven Treatment: A New Paradigm for Type 2 Diabetes in Primary Care.
2. Hambling CE, Khunti K, Cos X, et al. 2019. Prim Care Diabetes 13(4): 330-52

^{3.}Gong Q, Zhang P, Wang J, et al. 2019. Lancet Diabetes Endocrinol 7(6): 452-61

^{4.} Cosentino F, Grant PJ, Aboyans V, et al. 2019. Eur Heart J 41(2): 255-323



Section 3: How can decision-makers enable cost-effective management of diabetes in primary care?

Streamlining diabetes services and fostering cross-collaboration

Obstacles

It can be challenging for primary care physicians to stay up to date with multiple sets of changing guidelines, which can lead to therapeutic inertia.¹

Patients commonly report lack of prevention, delayed diagnosis and poor management of co-existing conditions, such as cardiovascular disease.²

Actions

Establish structured care pathways with clear responsibilities for primary care.³

Introduce multidisciplinary teams and training to support primary care.³

Provide incentives for healthcare professionals to deliver best-practice diabetes care.⁴

^{1.} Harris SB, Cheng AYY, Davies MJ, et al. 2020. Person-Centered, Outcomes-Driven Treatment: A New Paradigm for Type 2 Diabetes in Primary Care.

^{2.}Saeedi P, Karuranga S, Hammond L, et al. 2020. Diabetes Res Clin Pract 165: 10819

^{3.} Diabetes UK. 2014. *Improving the delivery of adult diabetes care through integration.*

Streamlining diabetes services and fostering cross-collaboration cont.

IMPACT

Meeting treatment goals and improving outcomes

- Data from the UK National Diabetes Audit showed that meeting process targets was associated with a reduction of 22–26% in emergency admissions.¹
- Supporting primary care professionals with training and providing financial incentives could result in **earlier diagnosis** of diabetes, facilitating **timely treatment** and improving the management of the condition and any comorbidities.²
- Early diagnosis and treatment of type 2 diabetes reduces the risk of cardiovascular disease and premature death. 34
- Structured care pathways can help double the number of met treatment goals and reduce the risk of premature death by up to 70%.⁵

Upskilling primary care

 Multidisciplinary teams and improved collaboration can boost the confidence and skills of primary care physicians. Specialists can supervise and upskill primary care physicians to achieve similar clinical outcomes as hospital-based specialist clinics.⁶



Expanding primary care capacity with specialist nurses and pharmacists in the community

Obstacles

There are increasing workloads and workforce shortages in primary care.

There is inefficient distribution of tasks, with more than 75% of doctors and nurses in primary care reporting being overskilled for some of their daily tasks.¹

Care is fragmentated and poorly coordinated across settings, leading to professionals calling for more integrated care.²

Actions

Invest in the recruitment and development of diabetes specialist nurses.

Expand the remit of pharmacists to provide diabetes education and care.

Introduce case managers to coordinate care for people with diabetes.

^{1.}Organisation for Economic Co-operation and Development (OECD). 2020. *Realising the Potential of Primary Health Care*. 2.Vasconcelos Silva C, Bird D, Clemensen J, *et al.* 2022. *Diabet Med* 39(9): e14886

Expanding primary care capacity with specialist nurses and pharmacists in the community cont.

IMPACT

Meeting treatment targets cost-effectively

- Nurse-led interventions can achieve sustained improvement of glucose control¹ and cost-effectively reduce premature deaths, diabetes complications and cardiac events.² This can be facilitated by offering professional development to nurses.
- Community pharmacist-led interventions, such as patient education and counselling, can empower people with diabetes improving medication adherence, glucose control, blood pressure, quality of life and patient empowerment.³⁻⁶

Streamlining care and reducing health inequalities

- Case managers have the potential to **streamline processes and provide person-centred care** while also improving treatment adherence and outcomes.⁷
- Case managers with appropriate language and cultural training can help **improve glucose control in ethnic minority populations**, thereby reducing health inequities.⁸
- Pharmacist-led interventions can achieve cost savings of up to USD \$5,000 per patient per year in Hong Kong.⁹

1.Odnoletkova I, Ramaekers D, Nobels F, et al. 2016. PLoS One 11(10): e0163997

2.Lian J, McGhee SM, So C, et al. 2019. Diabetes Obes Metab 21(1): 73-83

3.Al Assaf S, Zelko R, Hanko B. 2022. Int J Environ Res Public Health 19(10):

4.Coutureau C, Slimano F, Mongaret C, et al. 2022. Int J Environ Res Public Health 19(6)

5.Pousinho S, Morgado M, Falcão A, et al. 2016. J Manag Care Spec Pharm 22(5): 493-515

6.Alabkal RM, Medlinskiene K, Silcock J, et al. 2022. J Pharm Pract: 10.1177/08971900211064459

7.La Regina R, Pandolfi D, Stabile N, et al. 2020. Pharmacy (Basel) 8(4): 193

8.Rawlins WS, Toscano-Garand MA, Graham G. 2017. J Educ Health Promot 6: 22

9.Chan CW, Siu SC, Wong CK, et al. 2012. J Cardiovasc Pharmacol Ther 17(1): 57-64

Investing in digital innovation

Obstacles

Access to diabetes-related services, such as nutrition or foot and eye care, is often limited in primary care and inconsistently distributed across regions.¹

Different registries across settings are a major barrier to exchanging information in diabetes care.²

Only seven countries in Europe have established a dedicated diabetes registry.³

Actions

Invest in implementing telemedicine and telemonitoring tools, and making them as accessible as possible.

Establish electronic health records and national diabetes registries. These can help assess the effectiveness of diabetes care according to clinical guidelines and hold healthcare professionals accountable.³

^{1.}Mc Hugh S, O'Mullane M, Perry IJ, et al. 2013. BMJ Open 3(8): e003217

^{2.}Raaijmakers LGM, Hamers FJM, Martens MK, et al. 2013. BMC Family Practice 14(1): 114

Investing in digital innovation cont.

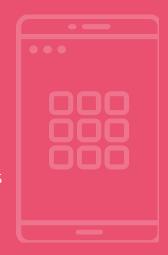
IMPACT

Improving access and glucose control

- Primary care physicians can benefit from digital decision-support systems throughout the care pathway.¹
- There is evidence that digital interventions can improve glucose control as effectively as usual care²⁻⁴ while also enabling **continuous access to quality care**.^{5 6}

Improving decision-making

- National diabetes registries can help **identify gaps in care**. Countries with established national diabetes registries have used them to understand the impact of diabetes on their population and identify unmet medical needs.⁷
- Diabetes registry data can be leveraged to improve performance and allocate resources efficiently.



^{1.}Jimenez G, Tyagi S, Osman T, et al. 2020. J Med Internet Res 22(8): e18109

^{2.}Robson N, Hosseinzadeh H. 2021. Int J Environ Res Public Health 18(22):

^{3.}Lu AD, Gunzburger E, Glorioso TJ, et al. 2021. J Gen Intern Med 36(9): 2585-92

^{4.} Mabeza RMS, Maynard K, Tarn DM. 2022. BMC Prim Care 23(1): 52

^{5.}Inglin L, Wikström K, Lamidi ML, et al. 2022. BMC Health Serv Res 22(1): 725

^{6.}Quinton JK, Ong MK, Sarkisian C, et al. 2022. J Gen Intern Med 37(5): 1198-203

Empowering people with diabetes and improving self-care

Obstacles

The lack of adherence to treatment for type 2 diabetes leads to worse outcomes and increased healthcare costs.¹

Healthcare professionals often do not receive appropriate training and support to empower patients.²

Actions

Reimburse self-management educational programmes run in the community or online, such as by pharmacists.

Implement digital tools to assist the self-management of people with diabetes. It is essential that these are accessible, convenient and easy to use.³

Provide appropriate guidance and digital education to overcome issues of digital literacy.

Empowering people with diabetes and improving self-care cont.

IMPACT

Improving treatment targets cost-effectively

- Patient education can improve outcomes and be cost-effective. There is evidence that patient education can improve self-management strategies, including glucose monitoring, physical activity, a healthy diet, and eye and foot care.¹
- Interventions that combine dietary education with exercise and psychosocial education are more effective at improving glucose control and have been shown to be cost-effective.²

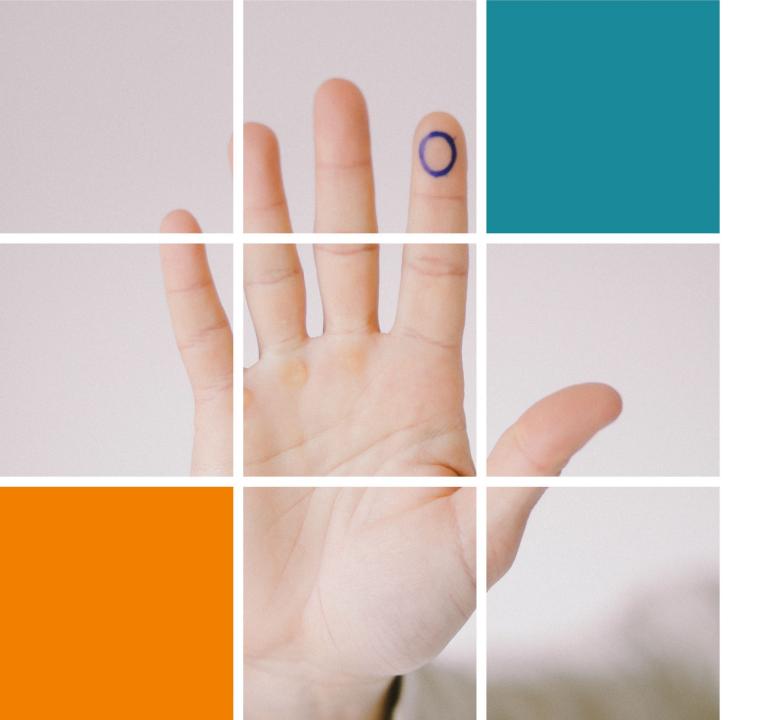
Facilitating self-care and treatment adherence

- Digital health tools can facilitate self-care and improve outcomes when accompanied by appropriate guidance and training.
- Technology-assisted education on diabetes self-management can **improve medication adherence** and help people with diabetes **understand how to manage their condition** via the use of web-based interventions, mobile phone applications, monitoring devices and other similar tools.³

^{1.}Almutairi N, Hosseinzadeh H, Gopaldasani V. 2020. *Prim Care Diabetes* 14(1): 12-20

^{2.}Siegel KR, Ali MK, Zhou X, et al. 2020. Diabetes Care 43(7): 1557-92

^{3.} Jain SR, Sui Y, Ng CH, et al. 2020. PLoS One 15(8): e0237647



Section 4: Case studies

United Kingdom: using resources more efficiently to improve diabetes care

The challenge: In the UK, there has been an increased focus on managing diabetes in primary care. However, the lack of coordination and collaboration between primary and secondary care has hampered progress.¹

The solution¹

In 2009, a new care model was implemented in the Portsmouth Hospitals NHS Trust. The aim was to treat 90% of people with diabetes in primary care following hospital discharge. The programme involved:

- clear criteria for managing diabetes in primary care or hospital
- multidisciplinary team for complex cases
- upskilling of primary care during multidisciplinary meetings
- shared decision-making between clinicians and patients
- digital technology, including a virtual clinic and a database review

What has been achieved?1

- Implementation across the UK and for other conditions
- £1.9 million saved in healthcare costs in 2014–2015.
- Up to 42% reduction in hospital readmissions due to diabetic complications.
- Up to 40% reduction in major events, such as heart attacks and amputations.

1.Nicholson E, Cummings M, Cranson I. 2016. Diabetes & Primary Care (18): 221-6

Europe: using data management systems to support clinical decision-making

The challenge: In Europe, many people with type 2 diabetes receiving insulin do not achieve their treatment goals.¹ One of the factors considered responsible is clinical inertia, which leads to increased hospitalisations, mortality and healthcare costs.²

The solution¹²

An EU-funded integrated personalised diabetes management programme was first trialled in general and specialist clinics across Germany. The programme involved:

- the use of software to collect blood glucose data daily and allow adjustments to be made based on the data
- patient education for self-care on how to measure and interpret their blood glucose data
- shared decision-making with regular reviews.

What has been achieved?¹

- Physicians were twice as likely to make adjustments to the insulin treatment compared with before the intervention.
- People with diabetes were twice as likely to adhere to treatment compared with baseline.
- Both physicians and people with diabetes reported greater satisfaction.
- Roll-out across Europe, starting with Denmark.

Slovenia: introducing nurses into primary care and monitoring the quality of diabetes services

The challenge: In Slovenia, a growing number of people with diabetes has been placing excessive pressure on the health system, 1-3 creating an urgent need to manage diabetes more efficiently.

The solution¹²

In 2011, the Ministry of Health launched the country's first national 10-year programme on diabetes along with monitoring procedures. The programme involved:

- enabling registered nurses to manage people with stable diabetes
- providing nurses with training for professional development
- registries to collect information on patient, clinical and quality indicators
- a screening programme for diabetes and other chronic conditions.

What has been achieved?¹³

- Implementation in 80% of primary care practices by 2017.
- 57% increase in glucose monitoring and annual examinations doubled.
- Most quality indicators were met with a rate of more than 80%.
- In almost 1 in 4 people screened, at least one chronic condition, including diabetes, was diagnosed.
- In more than 2 in 3 people, risk factors were uncovered.
- High satisfaction among people with diabetes and primary care professionals.

^{1.}Susič AP, Švab I, Klemenc-Ketis Z, et al. 2018. Public health Panor 04(04): 550-55

^{2.} World Health Organization. 2021. Tackling diabetes - how Slovenia developed its second 10-year programme on diabetes, and its new approach.

Belgium: implementing structured pathways to optimise collaboration and care

The challenge: In the 2000s, most people receiving insulin for diabetes were treated in specialist care, increasing demands on care services. There was a lack of collaboration among care settings.

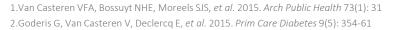
The solution¹

In 2009, Belgium redesigned its diabetes care, with care provision and teams tailored to different stages of the disease. The programme includes:

- early risk assessment and identification through the HALT2Diabetes programme for people aged 45 and over
- enabling GPs as care managers to provide individualised care plans and access to specialist services
- tailored, multidisciplinary care for people with diabetes requiring insulin
- full or partial reimbursement for certain exams, patient education and medical appointments to people with diabetes
- a pay-for-performance scheme to incentivise healthcare professionals.

What has been achieved?¹²

- A significant decrease in blood glucose levels.
- Around a 20% increase in rates of annual clinical tests, indicating more people were receiving adequate follow-up care.
- Almost all people enrolled met with their specialist at least once and their GP at least twice within a year of implementation.



US: assessing the cost-effectiveness of pharmacist-led diabetes management

The challenge: There is increasing evidence to support the benefits of pharmacist-led interventions in improving glucose control and cardiovascular risk in people with diabetes.¹

The solution¹

In the US, a pilot programme aimed to assess the cost-effectiveness of a pharmacist-led intervention for diabetes in primary care clinics. The intervention involved:

- a trained pharmacist, introduced to provide care for people with diabetes
- patient education and coordinated care by the pharmacist
- use of electronic health records to assess cost-effectiveness.

What has been achieved?¹

- 14% reduction in healthcare costs per person per month.
- 20% reduction in all-cause hospitalisations per year.
- 18.5% increase in the frequency of primary care visits, indicating improved access.

1.Maeng DD, Graham J, Bogart M, et al. 2018. Clinicoecon Outcomes Res 10: 551-62

In conclusion: Why should decision-makers invest in primary care?

Investing in primary care has the potential to **improve outcomes** for people with diabetes and save costs for health systems. There is strong evidence that primary care can facilitate early diagnosis, provide person-centred care that addresses comorbidities, and help reduce health inequalities.

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