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Implementing integrated diabetes systems in Europe

The enabling role of integrated finance and IT

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Contents

Calls to action

Diabetes represents a significant challenge for European health systems. There are 60 million people with diabetes in Europe and diabetes management already represents as much as 10% of overall health budgets—with both figures set to rise. Integrated diabetes systems, comprising horizontal and vertical integration, present an opportunity to reduce the fragmentation of care, ultimately increasing the efficiency and effectiveness of diabetes services.

The following calls to action are based on a scorecard benchmarking the level of service, IT and financial integration in 28 European countries, plus discussions with experts in diabetes management and integrated services.

To learn more and view the full scorecard, visit the Implementing integrated diabetes systems in Europe hub at: www.integrateddiabetessystems.eiu.com

Executive summary

The vertical integration of healthcare systems in diabetes can improve outcomes and reduce costs

Diabetes is a significant public health challenge for Europe now and in the future. Currently there are 60 million people living with diabetes in Europe—the equivalent of the population of Italy, with that number set to rise to 68 million by 2045.[1] Alongside growing numbers of people with diabetes, preventable complications are driving approximately 75% of diabetes-related healthcare costs.[2] Care for people with diabetes is complex as it requires the coordination of a range of healthcare professionals across primary, secondary and specialist care settings. This complex ecosystem of care is currently fragmented in most healthcare systems, leading to higher costs and poorer outcomes. Better diabetes system integration is therefore widely viewed as a logical solution to spiralling healthcare costs. Integration can also improve the quality of care, reduce the burden of complications and lead to better outcomes.

The "integrated diabetes systems" concept and the missing piece of the puzzle: financial integration

What exactly is meant by "integration"? Services are usually described as being either horizontally or vertically integrated. Horizontal integration is when organisations offering similar services work alongside each other—for example diabetes specialists coordinating with eye specialists to ensure people with diabetes get regular eye check-ups. Vertical integration occurs when the different levels of health services coordinate—for example general practitioners and diabetes specialists.

We use the term "integrated diabetes systems" as a concept that brings together all aspects of diagnosis, treatment, care and health promotion. This is vertical and horizontal integration in action, with the aim of reducing health service fragmentation to ensure a better coordinated care pathway for people with diabetes.

Integration of care has been widely implemented and discussed, focusing on barriers and enablers such as the human factors. The enablers of integrated systems—in particular integrated IT and finance systems—have been less well studied. Therefore this report focuses on IT and financial integration.

Our research reveals gaps in implementation and finance

Our policy scorecard assesses the level of integrated diabetes systems in 28 European countries, focusing on relatively understudied system enablers in integrated health IT systems and aligned finances. The scorecard identifies that while there is a good foundation of integrated diabetes systems policy, effective implementation of such policy is hampered by the lack of key enabling elements, such as integrated health IT systems and integrated finances. For integration to truly work there needs to be some element of budgetary integration, but less than half of the included countries had integrated diabetes funding in place and few had incentives in place for providers to encourage integration. This lack of financial integration is impeding the creation of effective integrated diabetes systems, and therefore hampering the promise of better outcomes and reduced costs.

The gaps in the enablers of the implementation of integrated diabetes systems identified in the scorecard and explored in this report have been translated into policy priorities.

Policy priorities for achieving effective and efficient integrated diabetes systems

These calls to action will, for the most part, be delivered by national governments and health systems. There is also a role for international collaboration and support from regional actors such as the European Union, through funding mechanisms such as the EU4Health programme or processes such as the European Semester.

- **Engage people with diabetes to put them at the centre of integrated diabetes services**
  - Include people with diabetes in the discussions around the design, implementation and operation of integrated diabetes systems (e.g. see case study 1).
  - Prioritise the integration of care planning where people with diabetes and physicians can agree on goals and develop individual diabetes care action plans together.
  - Build integrated IT systems that facilitate information sharing along the entire care pathway that can be accessed by all stakeholders—including people with diabetes (e.g. see case study 2).
- **Align or pool budgets to enable clinical integration, reduce fragmentation and deliver patient-centred care**
  - Align or pool budgets to ensure that funding for integrated diabetes services are equally distributed, support interprofessional teamwork and overcome financial divides between primary and specialist care.
  - Facilitate vertical integration of payment policies through mechanisms such as payment bundling to commission services along the entire care pathway (e.g. see case study 3).
  - Incentivise outcomes, not activity, to promote movement away from pay-for-service towards outcome-based payments (e.g. see case study 5).
- **Establish evaluation mechanisms to facilitate continuous monitoring and improvement of integrated diabetes systems**
  - Include key stakeholders and people living with diabetes in the selection of outcome measures to understand the true meaning of value to a patient and the wider health system. This could include rates of diabetes complications, patient experience and costs (e.g. see case study 4).

- Prioritise frequent and thorough monitoring processes so that existing and new diabetes integrated diabetes systems deliver on the shared objectives of all stakeholders, including people with diabetes.
- Ensure existing integrated IT health systems have mechanisms in place to assist with the collection of reliable, high-quality data. For example, through national diabetes registries.

The impact of diabetes in Europe: rising numbers and costs

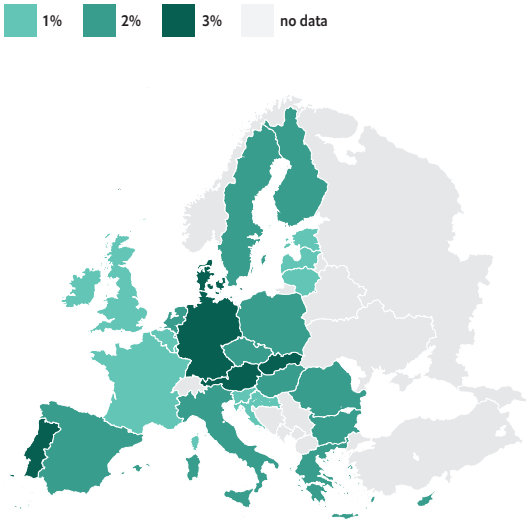
Increasing prevalence that shows no signs of slowing

Diabetes is a chronic disease characterised by high blood glucose levels. The condition can be categorised into two main types: type 1 and type 2. Type 1 diabetes (T1DM) occurs when the body's immune system attacks its own insulin-producing cells, whereas type 2 (T2DM) happens when the body is unable to produce enough insulin, or the body's cells are unable to react to insulin. Of the two, type 2 is more common, accounting for approximately 90% of all cases.[3]

In 2019, the global prevalence of diabetes was estimated at 463 million people (aged 20-79 years), with approximately 60 million of those living in Europe—the equivalent of the population of Italy.[4] Predictions show that the numbers of people diagnosed with diabetes are set to rise to 68 million by 2045 and with up to 40% of people with diabetes in Europe going undiagnosed, the number of people affected could be even higher.[5] This number represents almost 6% of the regional population in this age group.[6]

Of the 28 countries included in this study, Germany has the highest prevalence of diabetes (10.4%) compared with Ireland at 3.2%. Figure 1 shows the expected percentage change in diabetes prevalence between 2019 and 2045 across the 28 selected European countries, all of which predict an increase. Germany and Portugal had the largest estimated percentage increase of 2.2% compared with 0.7% in Croatia which was the lowest.

Figure 1: Percentage change in diabetes prevalence in the EU28, between 2019 and 2045



Source: International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. Brussels: The International Diabetes Federation; 2019. Available from: https://www.diabetesatlas.org/data/en/

The rising cost of diabetes, driven by complications and their associated costs

The cost of managing diabetes represents a large proportion of overall health budgets. In the UK diabetes spending accounts for 10% of the national health service budget, a figure projected to rise to 17% over the next 15 years.[7]

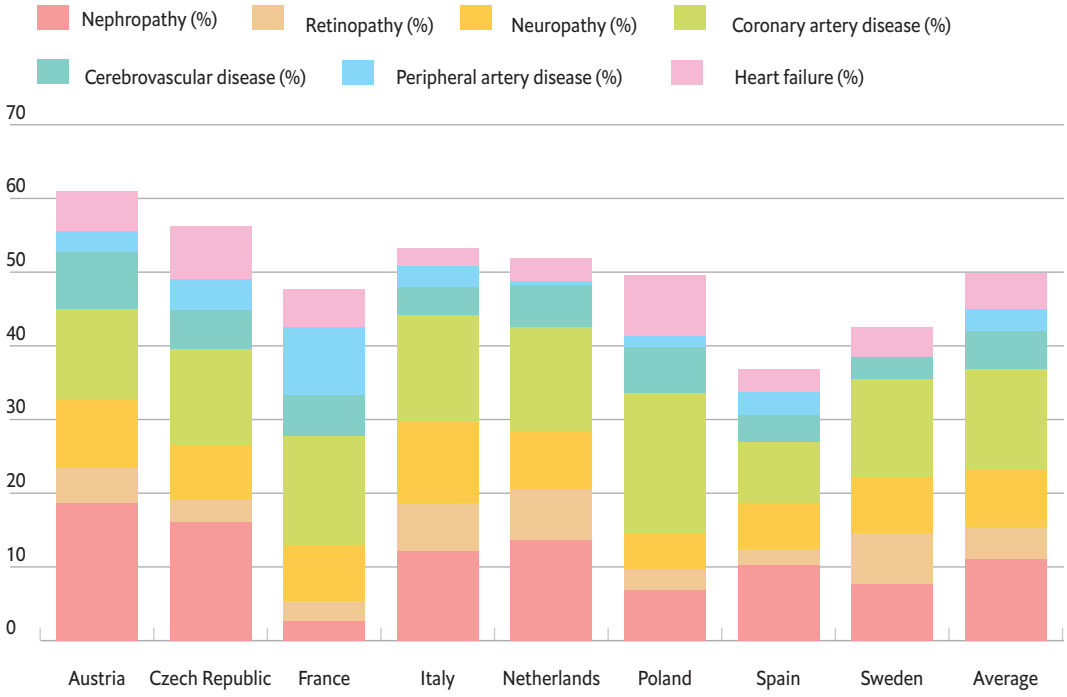
An estimated 75% of diabetes spending is driven by the treatment of complications that are largely preventable through the effective management of diabetes.[8] Multi-factorial control in both types of diabetes can result in delayed onset and progression of complications.[9] However, diabetes is not an easy condition to control and management of diabetes requires more than just keeping blood glucose levels within a particular range.

Managing the health of people with diabetes requires coordination of many different healthcare professionals to take care of the person as a whole, acknowledging the clinical, socio-economic and environmental challenges they face.[10]

Complications can occur as a result of consistently uncontrolled or poorly-controlled diabetes, these include heart disease and stroke, foot and circulation problems, blindness, kidney problems, loss of limbs and death (see Figure 2).[12] Additionally, Type 2 diabetes can go undetected for up to ten years, with half the individuals already presenting with complications at the time of diagnosis. The rate of complications can give an indication of how well diabetes is being managed because good management prevents and delays complications.

Disability-adjusted life years (DALYs) is an economic measure used to quantify the number of years lived with disability. DALYs not only show how diabetes can personally affect an individual's life, but also the impact on a country in terms of the indirect costs associated with the disease, mainly relating to the economy such as reduced productivity, absences due to sickness, premature loss of life and early retirement.[13] Diabetes-related DALYs can act as an indicator of how well health

Figure 2: Diabetes complication rates in 8 of the included countries



Source: International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. Brussels: The International Diabetes Federation; 2019. Available from: https://www.diabetesatlas.org/data/en/

systems are able to manage the complexity of diabetes and its complications. Within the selected 28 countries, Germany, Italy and Malta had the highest rate of DALYs (see Figure 3).

The costs of complications are driven by treatment, such as inpatient hospital stays, whilst outpatient costs include medications, monitoring equipment and monitoring/managing/preventing complications. The presence of several complications multiplies the cost of treating diabetes several times, highlighting the importance of high-quality management that prevents complications.[14]

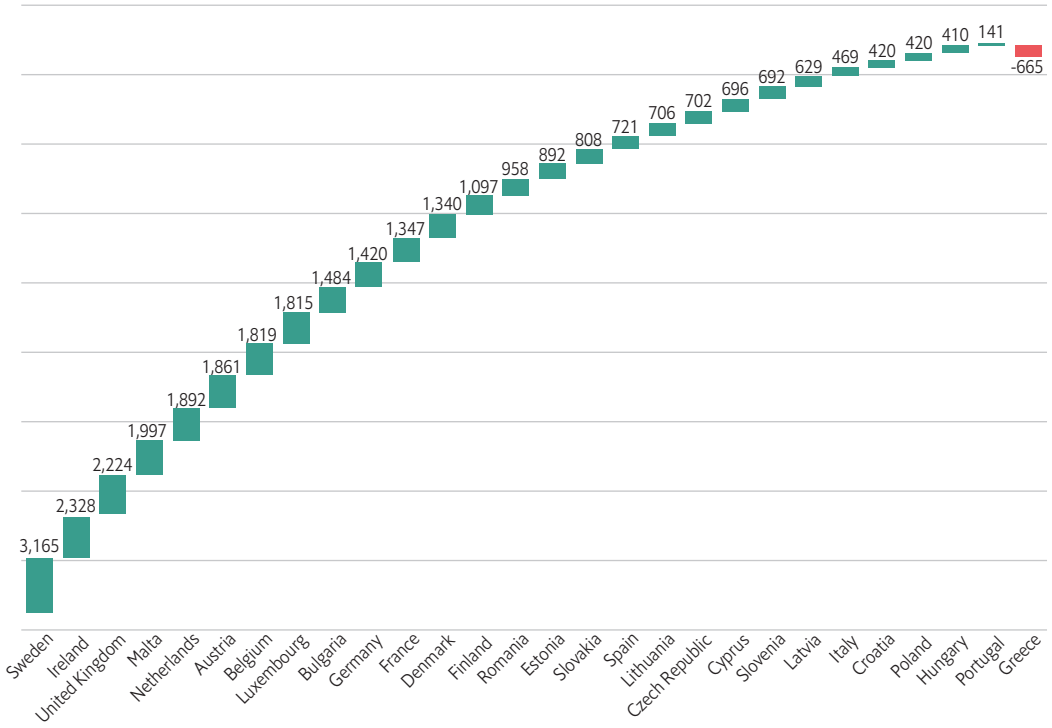
The IDF reports that the total diabetes-related health expenditure in Europe in 2019 amounted to approximately €135,680 million, working out at a mean expense of €2,290 per person with diabetes. This is expected to rise to around €142,464 million by 2030.[15] In the included countries, between 2010 and 2019, the mean diabetes-related expenditure per person increased for every country except Greece (see Figure 4.

Figure 3: Diabetes-related DALYs in the 28 selected European countries

DALYs rate 500,000-1,000,000	DALYs rate 100,000-500,000	DALYs rate 10,000-100,000
Germany	Belgium	Austria
Italy	France	Bulgaria
	Hungary	Croatia
	Netherlands	Cyprus
	Poland	Denmark
	Portugal	Estonia
	Romania	Finland
	Spain	Greece
	United Kingdom	Ireland
		Latvia
		Lithuania
		Luxembourg
		Slovakia
		Slovenia
		Sweden
		Malta
Czech Republic—No data		

Source: Lin, X., Xu, Y., Pan, X. et al. Global, regional, and national burden and trend of diabetes in 195 countries and territories: an analysis from 1990 to 2025. Sci Rep 10, 14790 (2020).

Figure 4: Difference in mean diabetes-related expenditure (€) per person with diabetes (aged 20-79 years) in the 28 selected European countries, between 2010 and 2019



Source: International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. Brussels: The International Diabetes Federation; 2019. Available from: https://www.diabetesatlas.org/data/en/

Integrated systems as a diabetes management solution

Healthcare systems integration is a concept that brings together inputs, delivery, management, financing and organisation of services, in relation to diagnosis, treatment, care, rehabilitation and health promotion. Diabetes management requires strong coordination of activities and resources across different settings and providers, therefore integrated diabetes systems have been positioned as a promising solution to improve patient experience, whilst delivering greater efficiency and value for health care systems. Its main aim is to address the fragmentation of health services to ensure a better coordinated care pathway for individuals, especially in light of the increasing incidence of multi-morbidities.[16]

Integration can be described as horizontal or vertical. Horizontal integration is when organisations work alongside other organisations providing a similar level of services e.g. multi-hospital care providers.

Vertical integration occurs when organisations offer health services and functions at different levels of care, e.g. between hospitals and primary care practitioners.[17] Horizontal integration between services is more established than vertical integration, partly because it has been implemented for longer. Integrating at the same level of care is also potentially easier, for example, getting specialists within the same hospital to work together may not involve as many hurdles as enabling collaborative working across different organisations.

There is evidence that integrated diabetes systems deliver increased patient satisfaction, perceived quality of care and patient access.[18] However, one of the challenges with implementing integrated diabetes systems, is that the enablers and barriers are often two sides of the same coin, with the very elements that could aid its delivery, acting as hurdles. Integrated systems need to be nurtured in order to succeed, in order to reap the benefits, strong system leadership, professional commitment and good management are needed. Furthermore, for successful implementation of any framework, an organised and systematic approach through coordination between dedicated multi-disciplinary, patient-focused teams and organisations is fundamental.[19] Similarly, the integration of systems and processes underpins the coordination of care between providers and organisations. It incorporates fundamental building blocks of healthcare, from technology, equipment to budgets. Without integration occurring at this level, integrated solutions designed to improve patient care in some cases can directly conflict with one another.[20]

Over the past few decades, health care delivery systems have experienced a shift from simpler horizontal integration, to more complex vertical integration that requires connection and alignment of financing, administration, organisation, service delivery and clinical coordination across providers involved in diabetes care.[21] Vertical integration can deliver system-wide value by improving patient care.[22] The move towards vertical integration has occurred as a result of a shift in policy makers and payers' attention to improve health outcomes and patient-centredness as elements of value in healthcare.[23, 24] There are many approaches and perspectives shaping integrated diabetes systems to account for different healthcare system structure, for example highly regionalised systems, and as a concept it has shown itself to be effective in several contexts.[25]

The focus on horizontal integration means that much attention has been given to the enablers of the integration of clinical care and services. These include a focus on the human factors that can prevent effective integration and service fragmentation, where services are duplicated, and the system is not well designed to provide coordinated and continued care for people with diabetes.[26, 27] Whereas the enablers of vertically integrated systems have been relatively understudied. Vertically integrated financing and IT systems are the two key enablers of integrated systems, as they actively facilitate—and in the case of financing can incentivise—coordinated working across the different elements of an integrated health system.

Diabetes UK outlines key enablers of integration in their best practice guide to commissioning diabetes services. These centre around five principles that mutually reinforce integration, whilst putting the needs of people living with diabetes at the centre of coordinated diabetes care:[28]

1. **Integrated IT systems** — Allows all the providers along the diabetes care pathway to be able to access a patient's data in an efficient and convenient manner. As well as this, it enables the identification of 'at risk' patients.
2. **Aligned finances and responsibility** — The pooling of budgets or having clearly defined protocols about how people living with diabetes are treated in a particular part of the system can help overcome financial divides between primary and specialist care. All of these can help a system work together.
3. **Robust clinical governance** — Encourages alignment of the ambitions of key actors along the entire diabetes pathway towards a single goal and can pave the way towards continuous improvement.
4. **Care planning** — Where clinicians and patients work together to agree on goals and needs to develop diabetes care plans. The whole concept is structured around an engaged and empowered person living with diabetes.
5. **Clinical engagement and leadership** — All the key stakeholders involved in providing diabetes care work together in local networks to organise the whole care pathway for patients.

Speaking on this topic, expert Dr Nick Fahy—Senior Researcher, Partnerships for Health, Wealth and Innovation Theme of the National Institute for Health Research (NIHR)'s Oxford Biomedical Research Centre—explained that the most important thing to bear in mind when commissioning any integrated diabetes service, is that it needs to be viewed as a 'whole system integrated approach' covering the entire diabetes patient journey. This is especially necessary with diabetes because the nature of the condition itself means that the numerous teams involved in its delivery of care can be extremely wide-reaching.

The rising number of people with diabetes and the ever-increasing cost of managing the condition, puts pressure on health systems to act. There is a need to better manage the health of people with diabetes to prevent costly complications. Integrated diabetes systems that combine inputs, delivery, management and organisation of services, are widely viewed as a solution to improve the management of people with diabetes.

Benchmarking integrated diabetes systems in Europe

The centrepiece of this project is the *Diabetes integration in Europe scorecard*, developed through a literature review and the input of a panel of experts in diabetes and integrated systems. It assesses the current level of integration in the 27 EU Member States and the UK, and the presence of key enabling elements—in particular IT systems and financing—to provide a benchmark of integration across Europe. This report presents the findings of the scorecard, combined with desk research and interviews with key experts to provide a perspective on the implementation of the integrated diabetes systems policy assessed by the scorecard. For more information about the methodology used, please see Appendix 1.

Scorecard findings: policies to achieve integrated diabetes care

There are several core enabling elements that can facilitate successful integration of diabetes systems and these are fairly well researched in the literature. Despite this, the implementation of these principles can be inconsistent between countries.

To assess how well European countries are attempting to build integrated diabetes systems to make diabetes care less fragmented, The Economist Intelligence Unit (EIU) has developed a scorecard that examines the performance of the 27 EU Member States and the UK across four categories within two main domains—for a total of 14 indicators (Appendix II).

The two domains around which the scorecard is built are:

1. The impact of diabetes
   - 1.1 Diabetes prevalence
   - 1.2 Diabetes-related DALYs
   - 1.3 Diabetes expenditure
2. The presence of enabling elements for vertical integration
   - 2.1 Evidence of integrated services
   - 2.2 Evidence of integrated health IT systems
   - 2.3 Evidence of aligned finances and responsibility

The scorecard covers the following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

The scorecard review of the impact of diabetes highlights the growing prevalence of diabetes in Europe and shows that countries have a solid foundation of guidelines and programmes for integrated services to be built upon. In the categories measuring the evidence of integrated IT health systems and alignment of finances, it is clear that some challenges remain with implementation.

Good evidence of integrated diabetes policy across the selected European countries

The cooperation of strategies and protocols can support the alignment of services between institutions involved in providing care for people living with diabetes and other chronic conditions. For instance, overarching national level strategies and policies can ensure that care is standardised across the country and between different providers. They can also encourage effective clinical engagement between key stakeholders such as commissioners, providers, clinicians and people with diabetes, along the whole care pathway from diagnosis of diabetes to management of complications. Specifically, they can help align the approaches and responsibilities of various players towards a single and clearly defined goal. Similarly, they can draw attention to the infrastructure that needs to be firmly in place within diabetes management programmes to allow for effective implementation of integrated diabetes care, such as integrated IT systems and the alignment of budgets and finances.[29] Experience has shown that when these are developed in consensus with the relevant stakeholders and actors in the system, they are more likely to be respected and applied, and act as more of a guiding factor in healthcare professionals' behaviour.[30] (24)

Figure 5: Evidence of integrated services in the 28 selected European countries

Country	National diabetes care guidelines incorporate vertical and/or horizontal integration	Evidence of chronic disease management programme for diabetes	Evidence of multimorbidity management, including diabetes
Austria	Horizontal and Vertical	Yes	Yes
Belgium	Horizontal and Vertical	Yes	Yes
Bulgaria	Horizontal and Vertical	Yes	Yes
Croatia	Horizontal and Vertical	Yes	Yes
Cyprus	Horizontal	Yes	Yes
Czech Republic	Horizontal and Vertical	Yes	Yes
Denmark	Horizontal and Vertical	Yes	Yes
Estonia	No	Yes	Yes
Finland	Horizontal and Vertical	Yes	Yes
France	Horizontal and Vertical	Yes	Yes
Germany	Horizontal and Vertical	Yes	Yes
Greece	Horizontal and Vertical	Yes	Yes
Hungary	No	No	Yes
Ireland	Horizontal and Vertical	Yes	Yes
Italy	Horizontal and Vertical	Yes	Yes
Latvia	Horizontal and Vertical	Yes	Yes
Lithuania	Horizontal and Vertical	Yes	Yes
Luxembourg	Horizontal and Vertical	Yes	Yes
Malta	Horizontal and Vertical	Yes	Yes
Netherlands	Horizontal and Vertical	Yes	Yes
Poland	No	Yes	Yes
Portugal	Horizontal and Vertical	Yes	Yes
Romania	No	Yes	Yes
Slovakia	Horizontal and Vertical	Yes	Yes
Slovenia	Horizontal and Vertical	Yes	Yes
Spain	Horizontal and Vertical	Yes	Yes
Sweden	Horizontal and Vertical	Yes	Yes
United Kingdom	Horizontal and Vertical	Yes	Yes

All 28 countries scored well in the category of the scorecard assessing for evidence of integrated services, with 22 of them being given full scores across all three indicators (see Figure 5). Of the remaining countries Croatia, Cyprus, Estonia, Poland and Romania scored across two of the three indicators and Hungary scored in only one indicator—for evidence of multimorbidity management. Although the scorecard assessed whether national strategies and guidance showed evidence of integrated services in each country, it was not able to look into whether these where actually implemented on the ground. However, Dr Jelka Zaletel, Vice President of the National diabetes plan steering group at Ministry of Health of Slovenia, emphasised the role of strategic policy documents as an enabler, if not a guarantee of, of changes to practice.

Incorporation of integration within diabetes care guidelines

National evidence-based care or clinical guidelines proactively support and promote multi-sectoral partnerships and the provision of person-centred care. They are an important example of a tool that can be used to implement clinical or professional integration. The use of shared guidelines or protocols allows diagnosis and treatment to be standardised across different providers and institutions.[31] The scorecard measured whether integrated care is part of diabetes care guidelines, in order to assess whether care is coordinated across the different specialties required for effective management of the disease. National guidelines currently in use were identified to evaluate whether they mentioned the implementation of vertical or horizontal diabetes integration. Examples of vertical integration included coordination between primary, second and tertiary care and horizontal integration was assessed based on examples of coordination between specialties such as eye care and foot care. It was found that all but Estonia, Hungary, Poland and Romania have guidelines that incorporate concepts of integration, most of which mention both horizontal and vertical integration.

For example, in 2019, the Austrian Diabetes Society (Österreichische Diabetes Gesellschaft) published their current diabetes care guidelines "Diabetes Mellitus—Instructions for Practice". The guidelines take an integrated approach throughout, recommending cooperation between general practitioners, internists, paediatricians, psychiatrists, dieticians, nutritionists, nurses and carers, whilst also encouraging coordination between hospitals and different types of clinics.[32] Similarly, integration is one of the seven key aims of Austria's Diabetes Strategy (developed by the Federal Ministry of Social Affairs, Health, Care and Consumer Protection). In particular, the strategy seeks to ensure that different professional groups and institutions work together in a coordinated network in the prevention, diagnosis, treatment and care of diabetes, in order to provide a high standard of healthcare throughout the country.[33]

Chronic disease management and multi-morbidity management programmes are widespread

Chronic disease management takes place in primary care to prevent and treat chronic conditions. Elements of chronic disease management include self-management support (e.g. patient education, self-monitoring

training), delivery system design (e.g. integrated care pathways, care coordination, case management or patient navigation to support patients accessing different levels of care), decision support (clinical guidelines, education for primary care physicians and diabetes nurses), and clinical information systems (where data is accessible across teams involved in care).[34] 27 countries showed evidence of chronic disease management programmes for diabetes, with only Hungary not having an operational programme in place.

In Bulgaria, chronic disease management is detailed by the National Programme for Prevention of Non-Communicable Diseases (NCDs) 2014-2020 which focuses on diabetes and three other NCDs (cardiovascular diseases, malignant neoplasms and chronic respiratory diseases). Furthermore, self-management and decision support is increasingly integrated into educational programmes in schools across the country, throughout the community and even offered at public events for older individuals.[35] An example of this initiative is that as of 2019, self-monitoring training is expanding through a pilot programme where a group of people living with diabetes have been provided with 1,500 blood glucose monitoring sensors for at-home use, funded by the National Health Insurance Fund.[36]

Multimorbidity management acknowledges that people with chronic conditions and non-communicable diseases may have other health conditions that interact with each other. It focuses on common risk factors such as diet, physical activity and drug interactions to develop a care plan that is person-centred and not just defined by their healthcare conditions.[37] Furthermore, it also looks at the management of potential complications. All 28 countries showed evidence of multimorbidity management for diabetes.

An example of this can be seen in Hungary, where the national diabetes care guidelines mention the individualised treatment principle, stating that diet, physical activity and socio-economic circumstances should be considered when implementing any treatment programme. Within the guidelines, they provide recommendations for the treatment of obesity in detail and also cover management of other diseases such as hypertension and ischemic heart disease that people with diabetes are at a higher risk of developing.[38]

In Cyprus, the national guidelines similarly cover multimorbidity management for type 2 diabetes with regards to addressing risk factors. However, they also consider the management of complications, by suggesting a set of annual checks in order to detect possible cardiovascular complications in patients with diabetes, as well as the detection and management of kidney damage and neuropathic complications. When addressing comorbidities associated with depression, they reference the National Institute for Health Care (NICE UK) guidelines.

Case study 1 provides insight into another integrated diabetes care service, this time based in UK, which aimed to improve diabetes outcomes by providing self-management support through increased patient engagement.

Case study 1: patient-centric integrated service design in the United Kingdom—the Year of Care Programme[39, 40]

Background

The Year of Care (YOC) Programme was established in the UK as a pilot to evaluate whether care could be improved for people living with long-term conditions in the NHS. Diabetes was used as an exemplar, and the Programme was a partnership between Diabetes UK, NHS Diabetes, the Health Foundation (THF) and the Department of Health (DH). The programme focused on care planning which is a process offering patients the ability to actively engage with decisions related to how their diabetes will be managed, in particular with regards to self-management.

Structure

The YOC pilot programme ran for a period of three years at three sites (North of Tyne, Calderdale & Kirklees, and Tower Hamlets) and was split into two phases: the feasibility phase and the implementation phase.

The YOC was designed to transform the annual diabetes review, from a list of tests to complete, to a constructive dialogue between the person with diabetes and their healthcare professional. It does this by making routine consultations collaborative through care planning, and then by ensuring that the local services identified by the people living with diabetes are available to them through commissioning. Services could include education, weight management, screening for complications, smoking cessation advice and local exercise programmes. Once the individual patient choices have been made via the care planning process, commissioning at the macro-level takes place on behalf of the whole diabetes population.

YOC set out with six questions to answer throughout the sustained, integrated programme:

1. How to establish care planning in routine use
2. How to identify sections of the local population by potential need for services to support self-management
3. How to systematically link individual choices with actual service into commissioning at the population level
4. How to develop new and existing providers to support self-management
5. Comparing routine care costs before and after the YOC approach
6. The meaning for policy

Through regular quantitative and qualitative evaluation, the pilot assessed different components such as care planning, commissioning, IT and provider development at different times and sites. A set of measures was defined to record the progress and impact of the project: patient experience and satisfaction, service development and implementation of care planning and commissioning, costs of care delivered, and services used, clinical outcomes and indicators.

The YOC programme noted that one size does not fit all and described how different routes and approaches could be used to get from A to B. One of the challenges the YOC faced was data collection, in terms of reliability and data quality.

Key achievements

- There was an improvement in clinical outcomes such as blood pressure and diabetes control
- Care planning was shown to be cost neutral at practice level due to improved productivity and significant savings were made in some cases
- 76% of people with Type 2 diabetes on practice registers received at least one care planning consultation
- In Tower Hamlets, London, patient-reported involvement in care increased from 52% to 82%
- Diabetes care processes and data collection was improved
- Clinicians reported greater job satisfaction, better organisation and team work

Scorecard findings: where the gaps emerge—finance and implementation

Integrated IT health systems to facilitate sharing of information between providers

The integration of IT health systems is beneficial for sharing patient clinical records along the diabetes care pathway and between different clinical teams, community care and specialist care.[41, 42] A well-established and interoperable information system is pivotal in facilitating this sharing of information. Despite this, IT health-related barriers are often likely to be the most problematic in implementing integrated diabetes systems.[43] Experts have suggested that the rapid learning curve health providers had to embark on during the covid-19 pandemic—with the use of digital health solutions to conduct e-consultations and meetings between clinicians and multi-disciplinary teams—there is hope that these can be overcome.

As shown in Figure 6, findings from the scorecard showed that more could be done around integrated IT health systems in the selected countries, with only six (Belgium, Denmark, Greece, Slovenia, Sweden and the UK) receiving a full score for having all three initiatives in place. However, there are signs of progress, for example, Germany currently scores poorly but legislative reforms introduced from late 2019 onwards mean that its digital health service is set to improve rapidly.

A well-structured and functional technology infrastructure is essential for the efficient management of any diabetes care programme that operates from different geographical locations. The system needs to enable timely communication between members of the team, allow accurate tracking of patient movement throughout different organisations and aid clinical consultations.[44]

Electronic health records are widely available to facilitate integrated diabetes systems

Electronic health records (EHRs) are a key technical facilitator of integrated diabetes systems, allowing patients and healthcare professionals to view information across healthcare providers.[45] 23 countries use electronic health record systems at the national level; two countries (Italy and the Netherlands) use them at a regional level; and three countries (Germany, Ireland and Poland) do not have a national system in place.

Although Ireland does not currently have an EHR system in place, there is one in development which will be rolled out. The National Electronic Health Record Vision and Direction Policy has laid out a 15-year vision (2015-2030) that was accepted in the Houses of the Oireachtas Committee in the Future of Healthcare Sláintecare Report. According to the Sláintecare Report, the foundation of the EHR system should be in place by 2020. Some of the components will include: the availability of patient records across all platforms, the ability to order tests and view results electronically, remote access for patients to their medical records, the implementation and expansion of telehealth, online procurement and payment and comparison of patient outcomes across providers.[46, 47]

Similarly, Germany has various EHR systems run by insurance companies, but these are not consistently available or joined up across providers. Recent legislation requires that German insurers provide access to EHRs by January 2021.

Figure 6: Evidence of integrated IT health systems in the 28 selected European countries

Country	Is there is an electronic health records (EHR) system in place?	Is there a policy or strategy to facilitate interoperability of EHR?	Is there is a national diabetes registry?
Austria	National	No	No
Belgium	National and Regional	Interoperability Policy	Yes
Bulgaria	National	Included in eHealth policy	Yes
Croatia	National	Included in eHealth policy	Yes
Cyprus	National	No	No
Czech Republic	National	Included in eHealth policy	Yes
Denmark	National	Interoperability Policy	Yes
Estonia	National	Included in eHealth policy	No
Finland	National	Included in eHealth policy	Yes
France	National	Interoperability Policy	No
Germany	No	No	Yes
Greece	National	Interoperability Policy	Yes
Hungary	National	No	No
Ireland	No	Included in eHealth policy	Yes
Italy	Regional	Included in eHealth policy	No
Latvia	National	Included in eHealth policy	Yes
Lithuania	National	Included in eHealth policy	No
Luxembourg	National	Interoperability Policy	No
Malta	National	Included in eHealth policy	No
Netherlands	Regional	No	Yes
Poland	No	Interoperability Policy	No
Portugal	National	Included in eHealth policy	Yes
Romania	National	No	Yes
Slovakia	National	Included in eHealth policy	Yes
Slovenia	National	Interoperability Policy	Yes
Spain	National	No	No
Sweden	National	Interoperability Policy	Yes
United Kingdom	National	Interoperability Policy	Yes

Policies or strategies to facilitate the interoperability of EHR systems are generally present

In order to facilitate the interoperability of EHR systems, it is useful if policies or strategies indicate how systems can enable data flow between different parts of the health system, e.g. vertically between primary, secondary and tertiary care, as well as across different clinical teams.[48] Only nine countries in the scorecard had a separate policy in place that covered just interoperability (Belgium, Denmark, France, Greece, Luxembourg, Poland, Slovenia, Sweden and the UK). Twelve countries covered interoperability within their broader eHealth policy and seven countries did not have any policy or strategy on the topic.

In Poland, in 2017, the Interoperability Council (an advisory and consultative body of the Center for Health Care Information Systems) adopted a document providing recommendations for support of the implementation of interoperable IT solutions based on EHR profiles. The strategy covers interoperability with regards to electronic referrals and exchange of electronic health records.[49] Although this initiative is not diabetes-specific, EHRs that are interoperable are a central enabler of integrated diabetes services as they allow information and data to flow between the different stakeholders.

Only half of selected countries have a national diabetes registry

Data is an important part of understanding the impact of diabetes and evaluating diabetes programmes and their outcomes. Diabetes is a data-heavy condition as it requires people to regularly check their blood glucose, this data can in turn be utilised to tailor management to individual needs. Disease registries play a critical role in integrated diabetes systems and can provide support in several different ways. They can serve as a database of all the individuals living with a specific disease or condition and can also include information on socio-demographics, costs of care, data from laboratory investigations, complications and medication history. Most registries operate at either a national or regional level, however local level registries are also available.[50]

Despite playing a vital role in disease management, just over half of the selected countries have a national diabetes registry. Interestingly, countries such as France and Austria which had some of the highest percentages of their gross domestic product (GDP) dedicated to total health expenditure, do not have national level registries in place.

In some cases, subnational registries may exist or registries collected by insurers, however national registries remain the gold standard as a single data source reduces the risk of system or data incompatibility. Case study 2 highlights the role of integrated data in facilitating integrated diabetes services.

Case study 2: the importance of integrated data in integrated services, Local Health Units in Portugal

Background

Over the last few decades, Portugal has pursued several healthcare reforms to consolidate care services in the country. For example, hospitals have been continuously merging into larger hospital centres and groups since the early 90s.

Alongside this horizontal integration, in 1999, Portugal created Local Health Units (Unidade Local de Saúde) which vertically integrated hospital and primary health care units in the same geographical areas to promote collaboration and coordination across the various levels of care. In particular, the Local Health Units have become a resource for providing effective care for people with multiple needs, such as those living with diabetes.

Structure

Since 2009, LHUs have been financed through a mixed model which includes an adjusted capitation, pay for performance and service level agreements. A number of projects have been implemented within and outside the LHUs, focusing on different aspects of healthcare integration. These include, case management of complex cases, telecommunication mechanisms between hospitals and primary care settings, referral systems between different levels of care and home care following hospitalisation.

Achievements and evaluation

With regards to diabetes, this vertical integration was found to have positive implications such as a decrease in the number of hospital readmissions especially in those living with diabetic complications, by as much as 30%. However, other conditions have not seen the same success, and overall the implementation of LHUs has not been found to fulfil the hopes of improved integration in the country.

Evaluation process in Portugal - data collection and integrated IT systems

Data collection is an important part of this assessment and evaluation, and for example, Portugal's primary care system conducts widespread data collection across a significant number of indicators. The data is largely collected as part of contracting agreements with primary health care bodies and are used to evaluate performance and achievement. Indicators are selected on an annual basis.

In order to monitor patients, integrated IT systems are also in place in the country. Primary care physicians have access to a web platform—the Portuguese Health Data Platform—through which patient's electronic health records are available, also by patients themselves. Data is drawn from sources such as the national primary care information architecture, SClinico, which covers family practice, nursing appointments, nutrition appointments and basic emergency care.

Aligned finances and incentives are less well-established parts of integrated diabetes systems

> **Incentives need to be realigned to see a real change in integrated care**
>
> Dr Niti Pall, Europe Regional Chair of the International Diabetes Federation

The alignment of funding is a key enabler for achieving high-quality diabetes care by implementing integrated diabetes systems, the integrated structure of financing and payment mechanisms facilitate the translation of policy into practice. These elements influence each other and can either contribute to successful implementation or act as a barrier. Additionally, payment mechanisms can strongly influence the behaviour of health professionals. The inclusion of key, enthusiastic individuals is important to implement pilot projects, but to scale those up—according to Dr Jelka Zalatel—financial incentives are a central enabler.

Traditionally health services have been based on a fee-for-service model, where payments are linked to activities, or services, such as the number of visits; selection of certain types of diagnostic and/or treatment procedures; referrals to other institutions if needed; and levels of care.[51] Shifting away from fee-for-service models is important for financial alignment that enables integrated services. For example, fee-for-service can inadvertently incentivise one part of the system to 'hold on' to patients to secure revenue, when they might be better treated elsewhere.

Vertical integration of diabetes care funding aims to incentivise healthcare providers at all levels to collaborate in order to deliver patient-centred care and improve health outcomes.[52] These payment mechanisms include block payments, performance- or incentive-based payments, bundled payments and capitation (see Figure 7 for definitions).

Figure 7: Definitions of key vertically integrated funding models

Funding model	Definition
Block payment	Block payments are a payment that is given to a healthcare provider for delivering a specific or usually broadly-defined service such as diabetes care.[53]
Performance-based or incentive-based payments	A payment mechanism incorporating financial rewards for healthcare providers for achieving a high level of performance, outcomes or quality as defined in contracts.[54]
Bundled payments	Bundled payments are a single payment that covers the services involved in an individual's care across the diabetes pathway.[55]
Capitation	Capitation is a single, large payment made to providers to cover providing services for a target population, the sum is based on the total number of people within that population at the time.[56]

Figure 8: Evidence of aligned finances and responsibility in the 28 selected European countries

Country	Is diabetes care funding vertically integrated?	Are incentives in place for providers to facilitate/encourage integrated care in diabetes?
Austria	No	No
Belgium	No	Yes
Bulgaria	Yes	No
Croatia	Yes	Yes
Cyprus	No	No
Czech Republic	Yes	Yes
Denmark	Yes	No
Estonia	Yes	Yes
Finland	No	No
France	No	Yes
Germany	No	No
Greece	Yes	No
Hungary	No	No
Ireland	No	No
Italy	Yes	No
Latvia	Yes	Yes
Lithuania	Yes	No
Luxembourg	No	Yes
Malta	No	No
Netherlands	Yes	No
Poland	Yes	Yes
Portugal	Yes	Yes
Romania	No	No
Slovakia	Yes	Yes
Slovenia	No	Yes
Spain	Yes	Yes
Sweden	No	No
United Kingdom	Yes	No

Dr Apostolos Tsiachristas, Associate Professor at the University of Oxford's Health Economics Research Centre (HERC), stated that pay-for-performance models are not ideal for integrated systems because clinicians can trigger the system by focusing only on specific outcomes and missing out on providing holistic care to people living with diabetes. Within these models, it is vital that whole pathways of diabetes care are commissioned rather than individually, which adds to fragmentation of care, as well as supporting and incentivising the desired way of working, such as outcome-based payments.[57]

Overall, the scorecard indicators assessing the level of financial alignment within diabetes care in each country, was the one in which the 28 selected countries showed the poorest performance. Only seven countries scored fully in the domain, the same as the number of countries that did not score in either indicator. The best performing countries were Croatia, the Czech Republic, Latvia, Poland, Portugal, Slovakia and Spain. (Figure 8)

Although financial integration is considered a key enabling factor for achieving positive outcomes, only 15 countries had vertical funding systems in place. The means of budget integration in the 15 countries with vertically integrated diabetes budgets are shown below (Figure 9).

The most commonly use model of integrated funding is block payments, which is used in fewer than a third of the included countries (9/28). Block payments are based on providing

Figure 9: Models of vertically integrated diabetes funding present in the selected European countries

Country	Block payments	Performance-based payments	Bundled payments	Capitation
Bulgaria	√			
Croatia		√	√	
Czech Republic	√	√ Case study 5		√
Denmark	√			
Estonia		√		√
Greece	√			
Italy				√
Latvia	√	√		
Lithuania		√		√
Netherlands	√		• Case study 3	
Poland	√	√ Case study 4		
Portugal		√ Case study 2		
Slovakia	√			
Spain		√		
United Kingdom	√	√		

a service to a specific population, the payment is calculated using a variety of methods.

Performance-based payments are used in nine countries, this can be used as part of value-based commissioning to link payments to the achievement of specific outcomes—such as clinical outcomes—rather than process outcomes such as the volume of procedures. Diagnosis-related group payments for diabetes—which provide payments per person with the same diagnosis, assuming they will receive similar care—are in place in five countries. This reimbursement method is commonly used for hospital-based care, hence it is not counted as a form of vertically integrated funding, for example in Portugal it is only used in in-patient and ambulatory surgery and Slovakia is introducing this payment method for hospital-based care only.[58] Less commonly used funding mechanisms are bundled payments (see Case Study 3) and capitation.

It is important that funding mechanisms are integrated to align with the integrated approach they support. As Professor Nick Guldemond points out, implementing integrated systems can generate costs, especially when it is first implemented as there are start-up costs that do not necessarily repeat and time may be required for training, etc. Financing models need to acknowledge the practical aspects of implementation to reflect the effort involved in integrated systems, says Professor Guldemond.

The Netherlands has introduced a bundled payment model to fund their diabetes care system (Case study 3). Dr Niti Pall, Europe Regional Chair of the International Diabetes Federation, recalled that pilot schemes have sometimes struggled to integrate into the existing health system and scalability is a common challenges. Dr Tsiachristas described the incremental process of moving from conventional payment models like fee for service and some performance based payment towards a new payment system as a way to overcome these challenges. The process involved gradually changing the risk structure and the proportion of payments made under each mechanism, including 10% of budget allocated to innovation to enable primary care providers specifically to experiment with different models of integrated systems. Dr Niti Pall agrees that payment for innovation is required.

Case study 3: improving diabetes service coordination through bundled payments, the Netherlands

Background

In 2007, in the Netherlands, a nationwide bundled payment system was introduced and implemented for diabetes care—that is, '*paying a single fee for all the medical services involved in an episode of care*'. [59, 60, 61, 62] The system was introduced as at the time, within primary care there was little collaboration with other disciplines such as physiotherapists or pharmacists. There was also a strict division between primary and specialist care, which did not allow for optimal care of those with chronic conditions. A major cause of this fragmentation of care was due to fragmentation of funding, using payment mechanisms such as pay-for service and capitation.

Structure

In order to improve the organisation of disease management and provide a solution to the fragmented payment models, the bundled payment system was introduced, where different elements of care for chronic diseases could be purchased, delivered and billed as a single product or service. The system works by health insurers paying a single fee to a care group, or the principal contracting organisation, which organises the care and ensures its delivery; only the care group and insurer are involved in the bundled payment contract and the price for each bundle of services is negotiated between the two organisations. Delivery of care can be carried out by the care group itself or using subcontracts with other healthcare providers.

Two care standards were developed: general modules and disease-specific ones. The general modules include interventions such as physical activity programmes and smoking cessation services, whereas the disease-specific modules are specific to the chronic condition they serve. They are categorised into four phases of care: early detection and prevention; diagnosis; individual care plan and treatment; and coordination, rehabilitation, participation and secondary prevention. All the services included in the disease-specific bundles are described in standards which are set at the national level in consultation with caregiver organisations, patient associations, public health authorities and insurers. All the services included in the bundles are fully covered by the basic insurance, so no additional out-of-pocket payment is required from patients.

Evaluation

The Dutch National Institute for Public Health and the Environment was appointed with evaluating the success of the care groups, by assessing process and health outcomes using patient records and use of hospital care and costs from insurance claims data against a control group of patients who were not cared for by the care groups. This was complemented by patient

post-intervention surveys and interviews with stakeholders. The results from the evaluation of the implementation of bundled payment systems on diabetes care were mixed:

Provider experience:

- Providers reported improvements in perceived quality and patient-centeredness

Costs per patient per year:

- The use of hospital-based specialised care declined by almost 25%, resulting in savings of €40 per patient, per year.
- However, total annual costs per patient increased by €329 more than in the control group.

Financial incentives to support integrated diabetes systems only present in half of countries

> **Services that are not paid in the right way or in the stimulated way may decline to a really great extent**
>
> Dr Jelka Zaletel, Vice President of the National diabetes plan steering group at Ministry of Health of Slovenia

In order to encourage and facilitate integrated diabetes care, more attention is being paid to performance monitoring for healthcare professionals through incentivisation. Despite this, only half of the 28 countries incentivise care providers or clinicians to reward delivery of integrated care. Incentives can be financial or otherwise, such as changes to reimbursement models to acknowledge the time involved in achieving integrated activity like attending multidisciplinary meetings. Furthermore, it is important to make sure the incentive system is well designed with approval from the health providers because there have been cases where perverse incentives have inadvertently been introduced and resulted in physicians losing money.[63]

In 2009, the French Health Insurance body (l'Assurance Maladie) introduced the pay-for-performance pilot programme "Contracts for Improved Individual Practice" (CAPI) for primary care physicians in an attempt to stimulate fundamental changes in the way health care is delivered.[64] In 2012 CAPI was extended to all GPs and to some specialists for a set of specific indicators, and the programme was renamed "Payment for Public Health Objectives" (PPHO). The PPHO programme aims to improve quality of clinical care and to encourage efficient practices and organisation, but it does not alter the existing fee-for-service payment system. It works through a total of 29 performance indicators, which include process, structure and outcome indicators in the four domains of performance: (i) prevention; (ii) chronic disease management (diabetes and hypertension); (iii) cost-effective prescribing; (iv) general organisation of the practice. The monetary value per point is negotiated annually, and in 2018, the average GP gained €4,915 through the programme, with a total of over 50,000 GPs participating in the programme. Additionally, the French government has recently introduced proposals that are designed to experiment with new payment methods in primary care and hospitals to better respond to the growing burden of chronic diseases, by providing greater financial incentives for care coordination and quality and giving less weight to activity-based payments. Proposals include the introduction of lump sum payments for quality care of chronic patients, lump sum payments based on an assessment of quality of care provided, and bundled payments. They will gradually be rolled out in a number of hospitals, in 2020.[65]

Capitation, with performance-based bonus payments have been implemented in Czech Republic, Latvia, Lithuania, Poland and Slovakia. Performance-based indicators include blood glucose monitoring, screening for complications and hospital referrals. In recent years, in Lithuania the share of capitation in total revenue for primary care providers has declined in favour of the performance-based component.[66] Slovakia's second largest insurance company has

introduced performance-based incentives of up to 15% in addition to capitation to incentivise high quality diabetes care. Its evaluation metrics include clinical outcomes, use of eHealth services (such as electronic billing), preventive services and patient satisfaction.[67, 68] Poland offers a sobering lesson in how poorly designed or inadequate incentives will not influence clinical practice (see Case study 4). In the Czech Republic, the largest health insurance company—Vseobecna Zdravotni Pojistovna (VZP)—provides bonus incentives to general practitioners (GPs), outpatient diabetologists and internists to encourage integrated services for people with diabetes (see Case study 5) . The "VZP PLUS" bonus programme, focused on diabetes (as well as hypertension and obesity), aims to improve the organisation and quality of healthcare provided to patients with these chronic diseases, to increase cooperation between healthcare providers and patients, and to educate the patient on diabetes.[69]

These case study findings align with the insight from Dr Nick Fahy that if money is used as an incentive, it has to be aligned with good data so that the results can be clearly measured. In addition, clinicians need to fully understand how the outcomes they are being incentivised to achieve are linked to the data, as it can guide their behaviours. This is easier to do with regards to diabetes as it is a data intensive condition. In order to see the real impact of a health system's financing model on integrated services, Dr Fahy recommended that all stakeholders have a collective stake in the outcome, financial or otherwise. Finally, the incentive—according to Dr Tsiachristas—has to be sufficient to motivate a change in or continuation of behaviour, otherwise providers may not view it as worth their while.

Case study 4: inadequate incentives lead to inadequate behaviour change, Poland's primary care experience

Background

Latvia, Lithuania and Slovakia operate capitation-based models that cover the basic costs of primary care, with performance based additional funding available to incentivise a high quality and integrated diabetes system.

Structure

A similar mix of capitation and performance-based pay is used in Poland, however, there is a lack of sufficient financial motivation for primary care doctors to pursue an integrated approach to care delivery.[70] Rather than diagnosis in primary care, there are high rates of referrals to specialist care to deflect the cost of investigations. Patient preference may also be a driver of high referral rates as Anna Śliwińska, President of the Polish Diabetes Association, says that patients perceive that they will receive better care from a diabetes specialist compared to their GP so ask for a referral. She also describes long waiting times for specialist appointments.

In addition to excessive referral patterns, Ms Śliwińska also highlighted that GPs are not always recognising and intervening early to address diabetes complications, leading to hospitalisations rates that are higher than the European average.[71]

Evaluation

Poor clinical outcomes in Poland are symptomatic of a primary health service that is not providing quality care and is not sufficiently incentivised to change practice.[72]

The capitation rates for people with diabetes were introduced without criteria for evaluating service quality, resulting in increased care costs without an improvement in quality.[73] This highlights the need for robust monitoring and evaluation mechanisms when designing and implementing integrated pathways.[74]

Case study 5: performance-based bonuses to incentivise integrated services in the Czech Republic

Background

In 2020, the Minister of Health Adam Vojtěch announced that the government wanted to reform primary care in the Czech Republic to reduce the burden on secondary care services. The aim of the reform was to resolve more chronic cases in primary care by providing general practitioners (GPs) with broader competencies.

The largest health insurance company in the Czech Republic, Vseobecna Zdravotni Pojistovna (VZP), seized this opportunity to improve cooperation between health insurance funds and providers by setting up reimbursement mechanisms. The funding was negotiated through discussions between health insurers and providers using an open and transparent process. The new mechanism is part of the VZP's larger focus to change the organisation of care in the Czech Republic to create a patient-centric healthcare system that revolves around quality and accessibility. While previously, the Czech healthcare system prioritised financing large hospitals and the salaries of healthcare professionals, this has now shifted to financing and achieving the best care for patients. VZP created quality programs for different therapeutic areas such as diabetes.

Structure

In order to achieve this, VZP introduced a vertically integrated funding system to incentivise adherence to their integrated diabetes system.[75] The model involves people with uncomplicated Type 2 diabetes being managed in primary care, allowing specialists to focus on people with Type 1 and complicated Type 2 diabetes. In particular, VZP's emphasis is on primary and secondary disease prevention.

To support this provision of care, VZP pays GPs for general care on top of the capitation and payment, to encourage the management of people with uncomplicated Type 2 diabetes in primary care, whilst the integrated model enables the specialist referral at any time to prevent or intervene early in complicated cases. Furthermore, to facilitate the correct implementation of preventive measures and examinations, VZP subsidises GPs in addition to the combined capitation and performance payments.

In addition, VZP offers full coverage of all the necessary treatments and interventions people living with diabetes may require from specialists and ensures that any necessary medicinal products are available within the public health insurance system to both specialists and GPs.

Translating integrated policy into practice

Diabetes affects over 60 million people in Europe and given the complex nature of the disease and potential complications, the care pathway can stretch across many areas of health, community and social services. Integration of diabetes systems can be effective in addressing the fragmentation of services and improving diabetes outcomes.

The scorecard findings highlight that in the selected European countries, there is a solid foundation of integrated diabetes care policy, with all countries having guidelines that incorporate integration, and chronic management and multi-morbidity programmes in place. However, the gaps emerge when it comes to the infrastructure needed to facilitate the implementation of integration and delivery of care, where integrated IT health systems and financial alignment models are not yet up to speed.

Despite this, there are several examples of good integration models, producing promising and positive diabetes outcomes across the countries. Although one size does not fit all, findings from the scorecard and expert interviews showed the importance of several core concepts.

IT systems are the backbone for implementing integrated diabetes systems

The lack of reliable and high-quality data was a recurring theme that came up during the expert panel and interviews. Integrated electronic health records and registries provide the opportunity for generation of significant amounts of credible data from a variety of sources. These can include data on outcomes such as complication rates, prescribing habits, hospital admissions, epidemiology and expenditure.

Electronic health records and disease registries allow providers to follow patients throughout the health system beyond their direct interactions. Interoperability of the different IT systems feeding into EHRs enables this sharing of clinical information between different stakeholders, including people with diabetes.

The need for integrated IT systems has become increasingly apparent over the last few months, given the capabilities and challenges that have come to light during covid-19. On one hand, the pandemic has showcased the lack of reliable data, but on the other, digital solutions have been harnessed through e-consultations and teleworking. Looking forward, learnings from covid-19 could pave the future for use of digital health and data collection for diabetes.

Incentivise the integrated working you want to see

Payment and reimbursement structures are both barriers to and facilitators of the implementation of any integration model. This was reiterated in the expert panel, interviews and literature. The way in which a programme is financed and commissioned can contribute heavily to service delivery and positive patient outcomes. Payments linked to appropriate outcome measures can incentivise and therefore guide behaviour that is aligned with and helps to achieve the shared objectives of all stakeholders, including people with diabetes. Considering payment structures as part of an integrated diabetes system also ensures that pathways are adequately funded to include all required activities.

Evaluation, evaluation, evaluation

As with all innovations, on-going monitoring and evaluation are key to understanding and refining an integrated diabetes system to ensure it meets the specified needs and objectives of all stakeholders, including people with diabetes. The evidence indicates that integrated systems contributes to improvements in diabetes care and management. However, it is hard to show a direct impact as evaluations often measure process measures and economic impact rather than clinical and patient-focused outcomes.[76] Outcome measure selection should involve comprehensive stakeholder engagement, including people with diabetes, because their desired outcomes will not always be the same.[77, 78]

Appendix 1: Methodology

Literature review

The literature review followed a pragmatic methodology, designed to identify key papers and concepts to inform the draft scorecard framework, discussion at the Expert Panel meeting and subsequent research.

Various sources were searched on 27th February 2020 for potentially relevant studies, restricted to studies published in the last 5 years (2015-2020). The reference list of potentially relevant studies was searched for additional relevant studies.

Scorecard development

Based on the themes identified during the literature review, a draft scorecard framework was developed for discussion with the Expert Panel. The framework was refined in response to the Expert Panel's feedback on its structure and contents.

Expert Panel

The Expert panel was comprised of the following individuals:

- John Bowis, President of Health First Europe; Former MEP.
- Dr Nick Fahy, Senior Researcher, Partnerships for Health, Wealth and Innovation Theme of the National Institute for Health Research (NIHR)'s Oxford Biomedical Research Centre; and Health Policy Consultant.
- Anne-Marie Felton, President Federation of European Nurses in Diabetes (FEND).
- Professor Edward Franek, Head of the Clinic of Internal Diseases, Endocrinology and Diabetology of the Central Clinical Hospital of the Ministry of Interior and Administration in Warsaw, main expert of the Analysis and Strategy Department team of the Ministry of Health.
- Dr Chantal Mathieu, Professor of Medicine and Program Director of Biomedical Sciences at the Katholieke Universiteit Leuven. Chair of Endocrinology at the University Hospital Gasthuisberg Leuven.
- Dr Niti Pall, General Practitioner; President, IDF Europe Region; Medical Director, KPMG.
- Detlev Parow, Head of Aids, Pharmaceuticals and Selective Contracts at DAK-Gesundheit.
- Adrian Sanders, Secretary General, COO-Parliamentary Diabetes Global Network, Chair -European Policy Action Network on Diabetes (ExPAND).
- Dr Jonathan Stokes, Research Fellow in Health Economics, Health Organisation, Policy and Economics (HOPE) Manchester University.
- Dr Apostolos Tsiachristas, Associate Professor in Health Economics, University of Oxford.
- Andrew White, Head of Medicines Optimisation, NHS Greater Manchester Shared Services, Chair Greater Manchester Medicines Management Group (GMMMG).
- Dr Frances Xavier Cos Claramunt, Director of Sant Martí Primary Health Centres (Catalonian National Health Service) Barcelona,Spain; Chairman Elect, PCDE.

Interviews

In addition to desk research, a number of in-depth interviews took place to understand integrated diabetes care and financing, especially issues around implementation.

- Dr Nick Fahy, Senior Researcher, Partnerships for Health, Wealth and Innovation Theme of the National Institute for Health Research (NIHR)'s Oxford Biomedical Research Centre; and Health Policy Consultant.
- Professor Nick Guldemond, Senior researcher at the Leiden University Medical Center and Visiting Professor at I.M. Sechenov First Moscow State Medical
- Dr Niti Pall, GP and Europe Regional Chair of the International Diabetes Federation.
- Dr Apostolos Tsiachristas, Associate Professor in Health Economics, University of Oxford.
- Dr Jelka Zaletel, Senior diabetes, NCD & policy expert, National Institute of Public Health, Slovenia.

Final Scorecard

The final scorecard is made up of the following domains and indicators:

1. Impact of diabetes
    - 1.1 Diabetes prevalence
        - 1.1.1 Age-adjusted comparative prevalence of diabetes, % — 2019
        - 1.1.2 Age-adjusted comparative prevalence of diabetes, % — 2030 (projected)
        - 1.1.3 Age-adjusted comparative prevalence of diabetes, % — 2045 (projected)
        - 1.1.4 Proportion of people with undiagnosed diabetes (20-79 y), % — 2019
    - 1.2 Diabetes-related deaths (rate)
    - 1.3 Average health expenditure per person with diabetes (Euros) – current
2. resence of enabling elements for vertical integration
    - 2.1 Evidence of integrated services
        - 2.1.1 National diabetes care guidelines incorporate vertical and/or horizontal integration
        - 2.1.2 Evidence of chronic disease management programme for diabetes
        - 2.1.3 Evidence of multimorbidity management, including diabetes
    - 2.2 Evidence of Integrated health IT systems
        - 2.2.1 Is there is an electronic health records (EHR) system in place?
        - 2.2.2 Is there a policy or strategy to facilitate interoperability of EHR?
        - 2.2.3 Is there is a national diabetes registry?
    - 2.3 Evidence of aligned finances
        - 2.3.1 Is diabetes care funding vertically integrated?
        - 2.3.2 Are incentives in place for providers to facilitate/encourage integrated care in diabetes?

Data collection and scoring

Indicators for domain 1 'Impact of diabetes' are non-scoring, where indicator data is presented in its raw form rather than translated into a score. Scoring would not have been appropriate in these cases because there is not a clear indication of what is "better" or "worse". For example, lower prevalence could be an indicator of poorer diagnosis rates, which would penalise countries that are effectively identifying people with diabetes. Additionally, for average expenditure per person high expenditure could be an indication of inefficiency and may not therefore translate into better care for people with diabetes.

The results for the indicators within domain 2 'Presence of enabling elements for vertical integration' are given as textual answers to enable rapid interpretation and comparison across countries. Five indicators are binary yes or no responses, whereas three are on a three-point scale with an intermediary middling score. Scoring indicators are presented using a red/amber/green scale.

A range of international and national sources were used for the data collection, in addition to interviews with experts. Scores across indicators were checked for consistency across countries before the scorecard was populated with final scores.

Foreign exchange rate calculations

Costs were converted to Euros for consistency, the EIU foreign exchange rates for US$ to € of 0.848 for September 2020 were used.

References

1. International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. Brussels: The International Diabetes Federation; 2019. Available from: https://www.diabetesatlas.org/data/en/.
2. European Diabetes Forum. A Call to Action, To All Stakeholders in the European Diabetes Landscape [Internet]. Available from: https://www.eudf.org/static/docs/call-to-action.pdf.
3. NHS UK. Diabetes [Internet]. NHS UK. 2019 [cited 2020 Jul 20]. Available from: https://www.nhs.uk/conditions/diabetes/.
4. International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. Brussels: The International Diabetes Federation; 2019. Available from: https://www.diabetesatlas.org/data/en/.
5. International Diabetes Federation. IDF Diabetes Atlas, 9th Edition. 2019 [cited 2020 Jul 20]. Available from: https://www.diabetesatlas.org/data/en/.
6. International Diabetes Federation. Europe, Diabetes Report 2010-2045 [Internet]. IDF Diabetes Atlas, 9th Edition. 2019 [cited 2020 Jul 20]. Available from: https://www.diabetesatlas.org/data/en/region/3/eur.html.
7. Diabetes UK. The cost of diabetes report. London: Diabetes UK; 2014. Available from: https://www.diabetes.org.uk/resources-s3/2017-11/diabetes%20uk%20cost%20of%20diabetes%20report.pdf [cited 2020 Sep 30].
8. European Diabetes Forum. A Call to Action, To All Stakeholders in the European Diabetes Landscape [Internet]. Available from: https://www.eudf.org/static/docs/call-to-action.pdf.
9. WHO. Metrics: Disability-Adjusted Life Year (DALY) [Internet]. World Health Organization. 2020 [cited 2020 Jul 21]. Available from: https://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/.
10. Diabetes.co.uk. Managing Diabetes [Internet]. Diabetes.co.uk. 2019 [cited 2020 Jul 22]. Available from: https://www.diabetes.co.uk/managing-diabetes.html.
11. NHS UK. Avoiding complications [Internet]. NHS UK. 2018 [cited 2020 Jul 20]. Available from: https://www.nhs.uk/conditions/type-1-diabetes/avoiding-complications/.
12. WHO Europe. Data and statistics [Internet]. World Health Organization, Europe. 2010 [cited 2020 Jul 20]. Available from: https://www.euro.who.int/en/health-topics/noncommunicable-diseases/diabetes/data-and-statistics#:~:text=There%20are%20about%2060%20million,unhealthy%20diet%20and%20physical%20inactivity.
13. WHO. Metrics: Disability-Adjusted Life Year (DALY) [Internet]. World Health Organization. 2020 [cited 2020 Jul 21]. Available from: https://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/.
14. Kanavos P, van den Aardweg S SW. Diabetes expenditure, burden of disease and management in 5 EU countries [Internet]. London; 2012. Available from: https://www.lse.ac.uk/business-and-consultancy/consulting/assets/documents/diabetes-expenditure-burden-of-disease-and-management-in-5-eu-countries.pdf.

15. International Diabetes Federation. Europe, Diabetes Report 2010-2045 [Internet]. IDF Diabetes Atlas, 9th Edition. 2019 [cited 2020 Jul 20]. Available from: https://www.diabetesatlas.org/data/en/region/3/eur.html.

16. Shaw S, Rosen R RB. What is integrated care? [Internet]. London; 2011. Available from: http://ars102.weblog.esaunggul.ac.id/wp-content/uploads/sites/5970/2017/03/014.-what_is_integrated_care_research_report_june11_0.pdf.

17. Heeringa J, Mutti A, Furukawa MF, Lechner A, Maurer KA, Rich E. Horizontal and Vertical Integration of Health Care Providers: A Framework for Understanding Various Provider Organizational Structures. International journal of integrated care [Internet]. 2020 Jan 20;20(1):2. Available from: https://pubmed.ncbi.nlm.nih.gov/31997980.

18. Baxter S, Johnson M, Chambers D, Sutton A, Goyder E, Booth A. The effects of integrated care: a systematic review of UK and international evidence. BMC health services research [Internet]. 2018 May 10;18(1):350. Available from: https://pubmed.ncbi.nlm.nih.gov/29747651.

19. Ham, Chris, Curry N. Integrated care: What is it? Does it work? What does it mean for the NHS? [Internet]. London; 2010. Available from: www.kingsfund.org.uk.

20. Mathews SC, Pronovost PJ. The need for systems integration in health care. The Journal of the American Medical Association [Internet]. 2011;305(9):934-5. Available from: https://pubmed.ncbi.nlm.nih.gov/21364143/.

21. Heeringa J, Mutti A, Furukawa MF, Lechner A, Maurer KA, Rich E. Horizontal and Vertical Integration of Health Care Providers: A Framework for Understanding Various Provider Organizational Structures. International journal of integrated care [Internet]. 2020 Jan 20;20(1):2. Available from: https://pubmed.ncbi.nlm.nih.gov/31997980.

22. Lopes S, Fernandes ÓB, Marques AP, Moita B, Sarmento J, Santana R. Can Vertical Integration Reduce Hospital Readmissions? A Difference-in-Differences Approach. Medical care [Internet]. 2017 May;55(5):506—13. Available from: https://pubmed.ncbi.nlm.nih.gov/28403012.

23. Heeringa J, Mutti A, Furukawa MF, Lechner A, Maurer KA, Rich E. Horizontal and Vertical Integration of Health Care Providers: A Framework for Understanding Various Provider Organizational Structures. International journal of integrated care [Internet]. 2020 Jan 20;20(1):2. Available from: https://pubmed.ncbi.nlm.nih.gov/31997980.

24. Greenwood DA, Gee PM, Fatkin KJ, Peeples M. A Systematic Review of Reviews Evaluating Technology-Enabled Diabetes Self-Management Education and Support. Journal of diabetes science and technology [Internet]. 2017/05/31. 2017 Sep;11(5):1015—27. Available from: https://pubmed.ncbi.nlm.nih.gov/28560898.

25. Bunn C, Harwood E, Akhter K, Simmons D. Integrating care: the work of diabetes care technicians in an integrated care initiative. BMC Health Services Research [Internet]. 2020;20(1):235. Available from: https://doi.org/10.1186/s12913-020-05109-5.

26. Nam S, Chesla C, Stotts NA, Kroon L, Janson SL. Barriers to diabetes management: Patient and provider factors. Diabetes Research and Clinical Practice [Internet]. 2011;93(1):1—9. Available from: http://www.sciencedirect.com/science/article/pii/S0168822711000519.

27. Nam S, Chesla C, Stotts NA, Kroon L, Janson SL. Barriers to diabetes management: Patient and provider factors. Diabetes Research and Clinical Practice [Internet]. 2011;93(1):1—9. Available from: http://www.sciencedirect.com/science/article/pii/S0168822711000519.

28. Roshan M, Singh B, Kar P, King P, Rea R, Lawrence S. Improving The Delivery of Adult Diabetes Care Through Integration: Sharing Experience and Learning [Internet]. London; 2014. Available from: www.diabetes.org.uk/integrated-diabetes-care.

29. Roshan M, Singh B, Kar P, King P, Rea R, Lawrence S. Improving The Delivery of Adult Diabetes Care Through Integration: Sharing Experience and Learning [Internet]. London; 2014. Available from: www.diabetes.org.uk/integrated-diabetes-care.

30. Gröne O, Garcia-Barbero M, Services WHOEO for IHC. Integrated care: a position paper of the WHO European Office for Integrated Health Care Services. International journal of integrated care [Internet]. 2001;1:e21—e21. Available from: https://pubmed.ncbi.nlm.nih.gov/16896400.

31. NHS Diabetes. Year of Care: Report of findings from the pilot programme [Internet]. 2011. Available from: https://diabetes-resources-production.s3-eu-west-1.amazonaws.com/diabetes-storage/migration/pdf/YOC_Report.pdf.

32. de Bakker DH, Struijs JN, Baan CA, Raams J, de Wildt J-E, Vrijhoef HJM, et al. Early Results From Adoption Of Bundled Payment For Diabetes Care In The Netherlands Show Improvement In Care Coordination. Health Affairs [Internet]. 2012;31(2). Available from: https://www.healthaffairs.org/doi/10.1377/hlthaff.2011.0912.

33. Gesundheit Österreich GmbH. Diabetesstrategie - Wirkungsziele [Internet]. Gesundheit Österreich GmbH. 2020. Available from: https://www.diabetesstrategie.at/de/Wirkungsziele.htm.

34. Nolte E, Knai C, Saltman RB. Assessing chronic disease management in European health systems: Concepts and approaches [Internet]. 2014. Available from: https://www.euro.who.int/__data/assets/pdf_file/0009/270729/Assessing-chronic-disease-management-in-European-health-systems.pdf?ua=1.

35. Ministry of Health of the Republic of Bulgaria. Национална програма за превенция на хроничните незаразни болести 2014-2020 [Internet]. Ministry of Health of the Republic of Bulgaria. 2013 [cited 2020 Jun 4]. Available from: http://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=861.

36. Clinica. НЕОБХОДИМ Е НОВ ДИАБЕТЕН РЕГИСТЪР [Internet]. Clinica.bg. 2019 [cited 2020 Jun 5]. Available from: https://clinica.bg/9813-Neobhodim-e-nov-diabeten-registyr.

37. Nolte E, Knai C, Saltman RB. Assessing chronic disease management in European health systems: Concepts and approaches [Internet]. 2014. Available from: https://www.euro.who.int/__data/assets/pdf_file/0009/270729/Assessing-chronic-disease-management-in-European-health-systems.pdf?ua=1.

38. Emberi Erőforrások Minisztériuma — Egészségügyért Felelős Államtitkárság. Egészségügyi szakmai irányelv — A diabetes mellitus kórismézéséről, a cukorbetegek anti hyperglykaemiás kezeléséről és gondozásáról felnőttkorban [Internet]. Emberi Erőforrások Minisztériuma. 2017 [cited 2020 Jun 7]. Available from: http://www.diabet.hu/upload/diabetes/magazine/dh.2017.1.pdf?web_id=.

39. NHS Diabetes. Year of Care: Report of findings from the pilot programme [Internet]. 2011. Available from: https://diabetes-resources-production.s3-eu-west-1.amazonaws.com/diabetes-storage/migration/pdf/YOC_Report.pdf.

40. Diabetes UK. Year of Care [Internet]. Diabetes UK. 2011 [cited 2020 Aug 11]. Available from: https://www.diabetes.org.uk/professionals/position-statements-reports/nhs-diabetes-commissioning-documents-guidance/year-of-care.

41. Diabetes clinical route and guidelines [Internet]. Available from: https://www.gesy.org.cy/el-gr/clinicaltrialdef/type2dm--3-.pdf.

42. The National Institute for Health and Care Excellence. Improving health and social care through evidence-based guidance [Internet]. Available from: https://www.nice.org.uk.

43. Roshan M, Singh B, Kar P, King P, Rea R, Lawrence S. Improving The Delivery of Adult Diabetes Care Through Integration: Sharing Experience and Learning [Internet]. London; 2014. Available from: www.diabetes.org.uk/integrated-diabetes-care.

44. Roshan M, Singh B, Kar P, King P, Rea R, Lawrence S. Improving The Delivery of Adult Diabetes Care Through Integration: Sharing Experience and Learning [Internet]. London; 2014. Available from: www.diabetes.org.uk/integrated-diabetes-care.

45. Suter E, Oelke ND, Adair CE, Armitage GD. Ten key principles for successful health systems integration. Healthcare quarterly (Toronto, Ont) [Internet]. 2009;13 Spec No(Spec No):16—23. Available from: https://pubmed.ncbi.nlm.nih.gov/20057244.

46. Houses of the Oireachtas - Committee on the Future of Healthcare. Sláintecare Report [Internet]. 2017. Available from: https://webarchive.oireachtas.ie/parliament/media/committees/futureofhealthcare/oireachtas-committee-on-the-future-of-healthcare-slaintecare-report-300517.pdf.

47. eHealth Ireland. Electronic Health Record (EHR) [Internet]. eHealth Ireland. 2019 [cited 2020 Jun 8]. Available from: https://www.ehealthireland.ie/Strategic-Programmes/Electronic-Health-Record-EHR-/.

48. Suter E, Oelke ND, Adair CE, Armitage GD. Ten key principles for successful health systems integration. Healthcare quarterly (Toronto, Ont) [Internet]. 2009;13 Spec No(Spec No):16—23. Available from: https://pubmed.ncbi.nlm.nih.gov/20057244.

49. Centrum e-Zdrowia. Standardy gromadzenia i wymiany danych w medycynie [Internet]. Centrum e-Zdrowia. 2015 [cited 2020 Jun 11]. Available from: https://www.cez.gov.pl/interoperacyjnosc/standardy-gromadzenia-danych/.

50. Sreedharan J. The need to establish local Diabetes Mellitus registries. Nepal journal of epidemiology [Internet]. 2016 Jun 30;6(2):551—2. Available from: https://pubmed.ncbi.nlm.nih.gov/27774340.

51. Gröne O, Garcia-Barbero M, Services WHOEO for IHC. Integrated care: a position paper of the WHO European Office for Integrated Health Care Services. International journal of integrated care [Internet]. 2001;1:e21—e21. Available from: https://pubmed.ncbi.nlm.nih.gov/16896400.

52. Heeringa J, Mutti A, Furukawa MF, Lechner A, Maurer KA, Rich E. Horizontal and Vertical Integration of Health Care Providers: A Framework for Understanding Various Provider Organizational Structures. International journal of integrated care [Internet]. 2020 Jan 20;20(1):2. Available from: https://pubmed.ncbi.nlm.nih.gov/31997980.

53. The British Medical Association [Internet]. 2020. Available from: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/funding/models-for-paying-providers-of-nhs-services.

54. The British Medical Association [Internet]. 2020. Available from: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/funding/models-for-paying-providers-of-nhs-services.

55. American Hospital Association [Internet]. 2020. Available from: https://www.aha.org/bundled-payment.

56. The British Medical Association [Internet]. 2020. Available from: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/funding/models-for-paying-providers-of-nhs-services.

57. Cashin Y-Ling Chi Peter Smith Michael Borowitz C, Thomson Cashin S. Paying for Performance in Health Care: Implications for health system performance and accountability [Internet]. 2014. Available from: https://www.euro.who.int/__data/assets/pdf_file/0020/271073/Paying-for-Performance-in-Health-Care.pdf?ua=

58. Dovera. DRG reimbursement mechanism. Bratislava: Dovera; 2020. Available from: https://www.dovera.sk/lekar/tema-hodnotenia-a-platby/drg-uhradovy-mechanizmus.

59. de Bakker DH, Struijs JN, Baan CA, Raams J, de Wildt J-E, Vrijhoef HJM, et al. Early Results From Adoption Of Bundled Payment For Diabetes Care In The Netherlands Show Improvement In Care Coordination. Health Affairs [Internet]. 2012;31(2). Available from: https://www.healthaffairs.org/doi/10.1377/hlthaff.2011.0912.

60. Busse R, Stahl J. Integrated Care Experiences And Outcomes In Germany, The Netherlands, And England. Health Affairs [Internet]. 2014;33(9). Available from: https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2014.0419.

61. de Bakker DH, Struijs JN, Baan CA, Raams J, de Wildt J-E, Vrijhoef HJM, et al. Early Results From Adoption Of Bundled Payment For Diabetes Care In The Netherlands Show Improvement In Care Coordination. Health Affairs [Internet]. 2012;31(2). Available from: https://www.healthaffairs.org/doi/10.1377/hlthaff.2011.0912.

62. Busse R, Stahl J. Integrated Care Experiences And Outcomes In Germany, The Netherlands, And England. Health Affairs [Internet]. 2014;33(9). Available from: https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2014.0419.

63. Suter E, Oelke ND, Adair CE, Armitage GD. Ten key principles for successful health systems integration. Healthcare quarterly (Toronto, Ont) [Internet]. 2009;13 Spec No(Spec No):16—23. Available from: https://pubmed.ncbi.nlm.nih.gov/20057244.

64. l'Assurance Maladie. Le Capi :Une dynamique au bénéfice des patients. [Internet]. 2010. Available from: https://www.ameli.fr/fileadmin/user_upload/documents/dp_CAPI.pdf.

65. Cashin Y-Ling Chi Peter Smith Michael Borowitz C, Thomson Cashin S. Paying for Performance in Health Care: Implications for health system performance and accountability [Internet]. 2014. Available from: https://www.euro.who.int/__data/assets/pdf_file/0020/271073/Paying-for-Performance-in-Health-Care.pdf?ua=.

66. European Observatory on Health Systems and Policies and the Organisation for Economic Co-operation and Development (OECD). State of Health in EU Lithuania Country health Profile [Internet]. 2019. Available from: https://read.oecd-ilibrary.org/social-issues-migration-health/lithuania-country-health-profile-2019_35913deb-en#page16.

67. Dovera. According to what and how we evaluate. Bratislava: Dovera; 2020. Available from: https://www.dovera.sk/lekar/tema-hodnotenia-a-platby/podla-coho-a-ako-hodnotime

68. Dovera. We help doctors. Bratislava: Dovera; 2020. Available from: https://www.dovera.sk/lepsizivotscukrovkou/ako-doverapomaha-diabetikom/pomahame-lekarom .

69. Všeobecná zdravotní pojišťovna. Organization and evaluation of quality of care for patients with diabetes mellitus [Internet]. Available from: https://www.vzp.cz/poskytovatele/bonifikace/bonifikacni-program-vzp-plus/diabetes.

70. European Observatory on Health Systems and Policies and the Organisation for Economic Co-operation and Development (OECD). State of Health in EU Poland Country health Profile [Internet]. 2017. Available from: https://www.euro.who.int/__data/assets/pdf_file/0006/355992/Health-Profile-Poland-Eng.

71. European Observatory on Health Systems and Policies and the Organisation for Economic Co-operation and Development (OECD). State of Health in EU Poland Country health Profile [Internet]. 2017. Available from: https://www.euro.who.int/__data/assets/pdf_file/0006/355992/Health-Profile-Poland-Eng.pdf?ua=1.

72. Organisation for Economic Co-operation and Development (OECD) iLibrary. State of Health in EU Poland Country health Profile [Internet]. 2019. Available from: https://www.oecd-ilibrary.org/docserver/297e4b92-en.

73. World Bank Group. Model 1 Coursebook pilot implementation [Internet].2017. Available from: http://documents1.worldbank.org/curated/en/814351505289374826/pdf/119681-REPL-OUO-9-model-1-PL.pdf.

74. World Bank Group. Model 1 Coursebook pilot implementation [Internet].2017. Available from: http://documents1.worldbank.org/curated/en/814351505289374826/pdf/119681-REPL-OUO-9-model-1-PL.pdf.

75. Všeobecná zdravotní pojišťovna. Organization and evaluation of quality of care for patients with diabetes mellitus [Internet]. Available from: https://www.vzp.cz/poskytovatele/bonifikace/bonifikacni-program-vzp-plus/diabetes.

76. Greenwood DA, Gee PM, Fatkin KJ, Peeples M. A Systematic Review of Reviews Evaluating Technology-Enabled Diabetes Self-Management Education and Support. Journal of diabetes science and technology [Internet]. 2017/05/31. 2017 Sep;11(5):1015—27. Available from: https://pubmed.ncbi.nlm.nih.gov/28560898.

77. Roshan M, Singh B, Kar P, King P, Rea R, Lawrence S. Improving The Delivery of Adult Diabetes Care Through Integration: Sharing Experience and Learning [Internet]. London; 2014. Available from: www.diabetes.org.uk/integrated-diabetes-care.

78. Suter E, Oelke ND, Adair CE, Armitage GD. Ten key principles for successful health systems integration. Healthcare quarterly (Toronto, Ont) [Internet]. 2009;13 Spec No(Spec No):16—23. Available from: https://pubmed.ncbi.nlm.nih.gov/20057244.

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