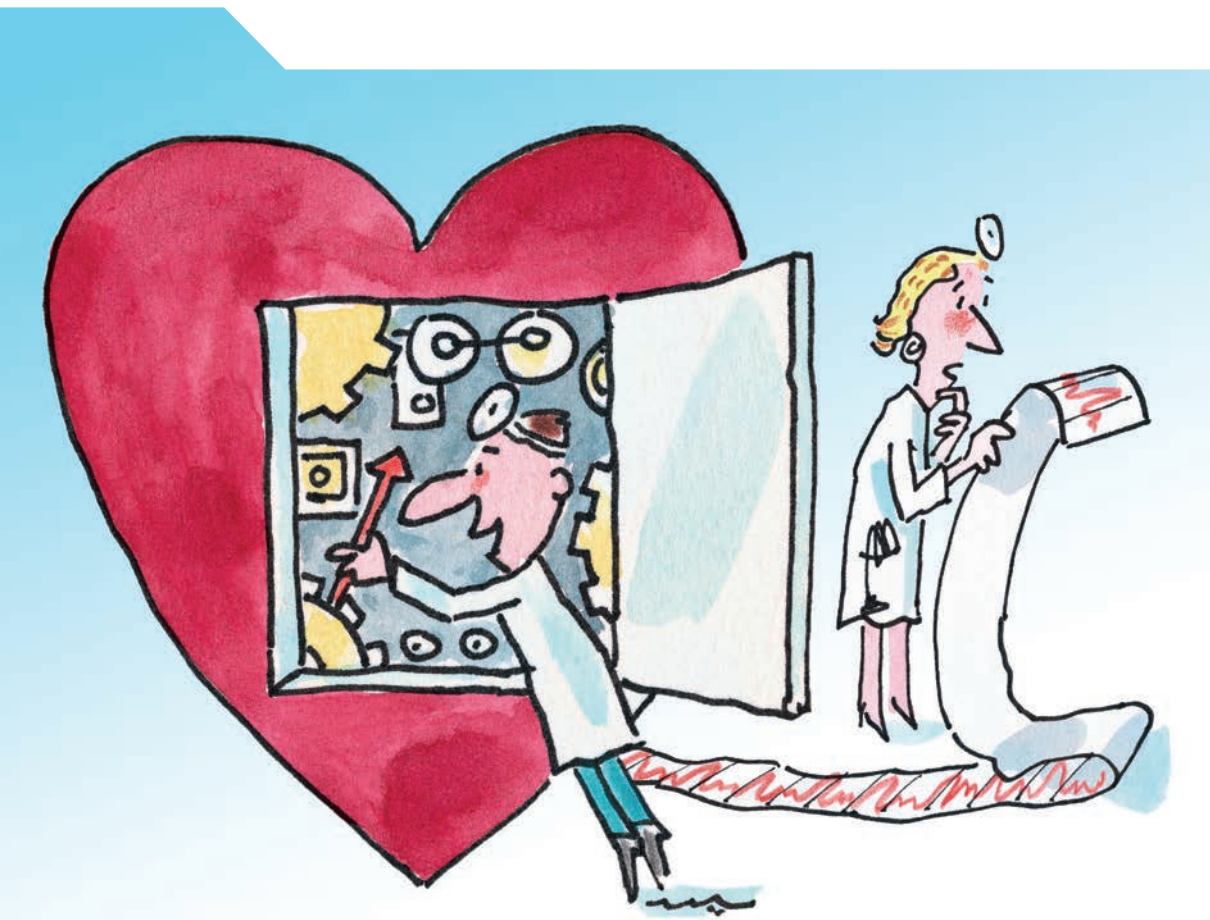
OECD Reviews of Health Care Quality

CZECH REPUBLIC

RAISING STANDARDS



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OECD Reviews of Health Care Quality: Czech Republic 2014

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Foreword

This report is the fifth of a series of publications reviewing the quality of health care across selected OECD countries. As health costs continue to climb, policy makers increasingly face the challenge of ensuring that substantial spending on health is delivering value for money. At the same time, concerns about patients occasionally receiving poor quality health care have led to demands for greater transparency and accountability. Despite this, there is still considerable uncertainty over which policies work best in delivering health care that is safe, effective and provides a good patient experience, and which quality-improvement strategies can help deliver the best care at the least cost. *OECD Reviews of Health Care Quality* seek to highlight and support the development of better policies to improve quality in health care, to help ensure that the substantial resources devoted to health are being used effectively in supporting people to live healthier lives.

The Czech Republic has made significant progress in improving the quality of health care in recent decades. The reduction in case-fatality rate after a heart attack, for example, is amongst the steepest in the OECD, more than halving from 15.7% in 2001 to 6.8% in 2011. But compared to its peers, quality monitoring and quality improvement activities remain at a basic level. There is great emphasis on ensuring that minimum standards are met, whilst initiatives to encourage continuous quality improvement are less developed. The relatively immature data infrastructure that underpins Czech health care is a key factor preventing more detailed, transparent and continuous quality monitoring of clinical processes and patient outcomes. To move to the next stage of continuous quality improvement, the Czech Republic needs to use health information better, in particular by publishing more measures of the outcomes of care. Greater consistency of vision, policies, and co-ordination across key bodies, including the various state institutes for safety, quality and information, insurers and health care providers is also needed. The health system should also develop a more proactive approach to managing chronic diseases such as diabetes, through better primary and secondary prevention work.

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Acronyms and abbreviations

CPD	Continuous professional development
CSU	*Český statistický úřad* (Czech Statistical Office)
CSSZ	*Česká správa sociálního zabezpečení* (Czech Social Security Administration)
CVD	Cardiovascular disease
DRG	Diagnosis related group
EHR	Electronic health records
EU	European Union
GDP	Gross domestic product
GP	General Practitioner
HIF	Health insurance fund(s)
IT	Information technology
IBA	Institute of Biostatistics and Analyses, Masaryk University
KSRZIS	*Koordinační středisko pro resortní zdravotnické informační systémy* (Co-ordination Centre for Departmental Health Care Information Systems)
LTC	Long-term care
NHIS	National Health Information System
NOR	National Oncological (cancer) Register
NRC	National Reference Centre (for co-ordination between HIFs)
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket payment for health care services

PROMS	Patient Reported Outcome Measures
P4P	Pay for performance
QOF	Quality and Outcomes Framework
SUKL	*Státní ústav pro kontrolu léčiv* (the State Office for Drug Control)
USD	United States Dollar
UZIS	*Ústav zdravotnických informací a statistiky* (Institute of Health Information and Statistics)
VZP	*Všeobecná zdravotní pojišťovna* (General Health Insurance Company, the largest health insurance company in the Czech Republic)
WHO	World Health Organization

Executive summary

This report reviews the quality of health care in the Czech Republic. It begins by providing an overview of the range of policies and practices aimed at supporting quality of care (Chapter 1), then focuses on three key areas: strengthening the data infrastructure underpinning health care (Chapter 2), screening and preventive health care (Chapter 3), and improving care for people with diabetes and metabolic syndrome (Chapter 4). In examining these areas, this report seeks to highlight best practices and provides recommendations to improve the quality of care in the Czech Republic.

Building a quality architecture to support continuously improving care

Stakeholders in the Czech health care system have developed a range of mechanisms to assure and improve the effectiveness, safety and patient-centredness of health care. Compared with other OECD countries, however, some of the mechanisms are less developed. In particular there remains more to be done to move towards a more systematic and continuous focus on the quality of care. Much reliance is currently placed on the assurance of minimal safety and quality standards through one-time accreditation. Continuous quality improvement through monitoring, feedback and incentives is voluntary. It would be helpful to ensure equal emphasis on mechanisms that aim at quality assurance and those that aim at quality improvement, to ensure a balanced approach. This will allow maximal gains from both summative and formative approaches to be exploited.

Greater transparency of information will also be key. Lists of accredited providers are not widely known among the public, for example, so cannot influence quality through the patient choice mechanism. In addition, opportunities for improved collaboration should be exploited between stakeholders dedicated to improving the quality of health care: between central and local governments (particularly around devising quality standards, monitoring frameworks and incentive structures), between regional governments and health insurance funds (particularly around designing pathways of care for patients with mixed, complex needs), and between health insurance funds (particularly around assessing the effectiveness and cost-effectiveness of new or existing initiatives).

Strengthening the data infrastructure

A substantial amount of data is gathered across the Czech health care system, yet it is not always clear that this is put to best use in monitoring and improving the quality of care. Most is used for billing and is thus primarily focused on volumes of care and resources. Little in-depth analysis that speaks to current policy questions is undertaken. In addition, the openness of the data infrastructure is relatively low – collaboration between academic partners and state institutions on data analysis is infrequent and patients have very limited access to information on the performance of local services.

Institutional fragmentation, insufficient emphasis on analysis and lack of health outcomes data hampers the ability of data infrastructure to contribute substantially to improving the quality of care. There are opportunities to streamline the data collection effort (including greater use of IT and automated data collection), produce more policy-oriented reports and explored greater linkage of data across databases. Collection of more clinical outcome data will also be instrumental in enabling better quality monitoring.

Better quality in screening and preventive health care

In common with most OECD countries, the Czech Republic has established a number of cancer screening programmes on a nationwide basis: breast cancer screening started in 2002, cervical cancer screening in 2008 and colorectal cancer screening in 2009. In addition, a ministerial decree stipulates that insurers offer all enrolees a medical check-up every two years and a dental check-up every six months. As well as taking a personal medical, social and occupational history, the medical check-up consists of physical examination, urinalysis and tests for blood sugar and cholesterol levels. This comprehensive medical check-up is generally performed by GPs.

Whether these programmes are delivering value for money and high-quality preventive care, however, remains uncertain. The incidence of cervical cancer has been stable at around 1 000 new cancers per year, for example, leading researchers to the conclusion that few benefits of opportunistic cervical screening manifest at the population level. Although the national cancer register publishes useful epidemiological data, including some assessment of the impact of screening through monitoring the clinical stage at which cancer is diagnosed, a much richer assessment of the screening programmes could be achieved if screening data were to be linked to clinical outcomes. Likewise, the impact of the universal medical check-up

is unknown. A cost-effectiveness assessment is needed and, if value for money cannot be demonstrated, investments should be redirected toward more effective forms of preventive care.

Improving care for patients with diabetes and metabolic syndrome

In the Czech Republic, as in many OECD countries, diabetes is a leading cause of morbidity, associated with significant co-morbidities and considerable expenditure. Prevalence of all diabetes is estimated at 8%, higher than the OECD average of 6.9% (2013). The burden of diabetes is rising, in line with increasing rates of obesity, ageing populations, and changing lifestyles. Of particular concern is the fact that the Czech Republic is the only country in which reported smoking rates are rising. Although mortality and some complication rates have fallen over the last decade (prevalence of chronic heart disease amongst patients with type 2 diabetes, for example, fell from over 40% in 2001 to below 30% in 2008), the picture is less encouraging, for other complications. The incidence of diabetic retinopathy, for example, appears to be increasing.

A richer data infrastructure covering diabetes care would help patients, practitioners and insurance funds identify shortcomings or risks in the quality of care. A priority would be to start work on a national register of patients with type 2 diabetes, to measure the quality and outcomes of care. In countries where quality indicators are established and collected nationally, such information can be used to identify weaknesses in care quality nationally and, potentially, at a local or hospital or practitioner level. There is also scope for GPs in the Czech Republic to take on a bigger role in the management of diabetes and better co-ordinate with specialists in the management of complex cases.

Assessment and recommendations

The Czech Republic has made significant progress in improving the quality of health care in recent decades. The reduction in case-fatality rate after a heart attack, for example, is amongst the steepest in the OECD, more than halving from 15.7% in 2001 to 6.8% in 2011. At the same time, the country has one of the lowest levels of health care expenditure among OECD countries, at 7.2% GDP in 2011. But compared to its peers, quality monitoring and quality improvement activities remain at a basic level. There is great emphasis on ensuring that minimum standards are met, whilst initiatives to encourage continuous quality improvement are less developed. An important explanatory factor is the relatively immature data infrastructure that underpins Czech health care. This prevents more detailed, transparent and continuous quality monitoring of clinical processes and patient outcomes. A linked and perhaps deeper driver concerns the fact that frequent and extensive changes of government officials appear to hinder the design and implementation of new quality improvement initiatives. To move to the next stage of continuous quality improvement, the Czech Republic needs to use health information better, in particular by publishing more measures of the outcomes of care. Greater consistency of vision, policies, and co-ordination across key bodies, including the various state offices and institutes for safety, quality and information, insurers and health care providers is also needed. The health system should also develop a more proactive approach to managing chronic diseases such as diabetes, through better primary and secondary prevention work.

The Czech health care system is based on a Bismarckian model of social insurance with mandatory health insurance from one of seven insurance funds, and a mix of private and public health care providers. Hospitals account for 32% of total national health care spending and outpatient care 35%, broadly in line with OECD averages. Most hospitals are publicly-owned by central government, regions or the municipalities. The providers of outpatient care on the other hand tend to be mostly private, with self-employed GPs constituting the backbone of the primary care. Considerable emphasis is placed on preventive health care. Collaboration between the Czech authorities and medical societies has established several screening programmes, including one of the first screening programmes for

colorectal cancer in the world. The quality and accessibility of care is verified by the government and to some extent also by the health insurance funds.

Recent quality reforms have focussed mainly on enhancing patients' rights. New modes of quality control, such as mandatory internal evaluation and voluntary external evaluation of hospitals' quality, have also been introduced. Nevertheless, governance around health care quality depends largely on self-regulation and one-time accreditation of minimum standards. These are extensive, covering aspects such as prevention of falls, safe identification, communication and transfer of patients, or monitoring of patient satisfaction. Nevertheless the opportunity of working toward continuous quality improvement is under-emphasized. In terms of data infrastructure, little useful information is generated beyond basic counts of personnel, facilities or patient numbers despite the existence of numerous data sources. It should be noted, however, that the Czech Republic has recently started reporting some of the health care quality indicators used by OECD member states to benchmark and compare performance. These are encouraging: case-fatality rate after heart attack is lower than the OECD average at 6.2% (although case-fatality rate after a stroke is higher than average), and avoidable admission rates for asthma and COPD are lower than the OECD average (although admission rate for diabetes is higher than average).

Despite these positive signs, there are several areas in which the Czech system still struggles. A key factor preventing more robust quality governance is the country's relatively immature data infrastructure. The large number of institutions gathering, analysing and disseminating health statistics, a lack of clinical data and unresolved issues around data sharing and data protection are holding back possibilities for more sophisticated and transparent monitoring of health care quality. Progress in advancing the continuous measurement and improvement of health care quality is also held back by:

- A narrowly oriented and poorly enforced quality agenda. Whilst internal quality-control, voluntary adverse event reporting and accreditation of meeting minimum quality standards are the first step in quality assurance and improvement, a more mature quality architecture will require transparent and continuous reporting of a wide range of process and outcome measures.
- A lack of incentives to drive quality improvement on the ground. Neither payment nor information systems are geared to encourage continuous quality gains, given that payments to primary care doctors are predominantly capitation-based, for example, and that

indicators of the local quality of care are not routinely published. This means that quality improvement risks being a low priority for clinicians and service managers in the Czech Republic. This contrasts with many other OECD countries that use incentives to drive better performance (through open comparison of performance or targeted performance related payments).

- Uncertainty whether value for money is being achieved with preventive health care initiatives currently in place. There is no quality oversight currently in place for a cardiovascular health check routinely offered to adults, nor has a cost-effectiveness analysis for this screening programme been undertaken. Likewise, although guidelines for secondary prevention of cardiovascular risk exist, nothing is known about adherence to them.

- A lack of clarity around the role of general practitioners in the co-ordination of care, particularly for chronic diseases such as diabetes. Patients' ability to access specialist care without a prior GP consultation, poorly defined mutual responsibilities of outpatient specialists and GPs and current payment systems mean that primary care's potential to lead chronic disease management is not being fulfilled.

- A lack of information for patients. Whilst Czechs currently enjoy the right to access any GP or hospital service, the free choice lever is underexploited as a driver to high-quality care because patients have little access to information about providers' quality of care. Hence, there is no incentive for providers to compete on quality.

- Poorly developed patient education and self-management of diabetes and other long-term conditions. Supporting patients in self-management will be critical given the increasing prevalence of these costly and complex conditions (diabetes now affects 1 in 12 Czechs).

- Inconsistent or short-term planning. Whilst new governments (of which there have been around ten in the past decade) naturally wish to bring about some change, extensive replacement of administrative and technical personnel and a tendency to do away with existing policy initiatives which risks preventing a mature quality architecture from developing.

As a priority, the Czech authorities should seek consensus on a strategy to develop the data infrastructure underpinning health care quality measurement and improvement, alongside sustained implementation of other quality improvement initiatives. A more extensive quality architecture

would include broadening accreditation to include primary and community care, as well as continuous monitoring and open comparison of a wide set of quality indicators across all sectors of care. Alongside development of a rich set of national health care quality indicators, it will be import to streamline current processes of data gathering and lower the administrative burden experienced by providers. More can also be done in terms of analysis and reporting – to enable patients, clinicians and policy makers to identify excellence and opportunities for improvement. Preventive health care efforts need to be strengthened, not only because they represent a unique opportunity for long-term cost containment, but also because they represent an opportunity for substantial health gains.

The rest of this chapter makes a more detailed assessment and set of recommendations for the Czech health care system as a whole, its underlying data infrastructure and for two clinical areas of particular interest – preventive health care and care for diabetes and metabolic syndrome.

Building a quality architecture to support continuously improving care

Stakeholders in the Czech health care system have developed a range of mechanisms to assure and improve the effectiveness, safety and patient-centredness of health care. Compared with other OECD countries, however, some of the mechanisms are less developed. In particular there remains more to be done to move towards a more systematic and continuous focus on the measurement and improvement of quality of care.

The approach to quality governance is fragmented and lacks consistency

The Czech Republic's quality governance model is held back by a lack of consistency in approach and clarity over objectives. Although Czech government is highly centralised, central authorities are liable to frequent changes of direction – in terms of the governance of health care quality at least. Changes of Health Minister (which have occurred frequently over the past decade) are often accompanied by changes of ministry officials, down to quite junior levels. This is likely to complicate the sustained development and implementation of new initiatives. To enable the Czech Republic to introduce more complex and ambitious quality initiatives as seen in some other countries (such as hospital- or clinician-level performance measures), greater policy continuity would be expected to be beneficial.

Regarding overall system governance, much reliance is currently placed on the mandatory assurance of minimal safety and quality standards through one-time accreditation (a "summative" approach, which evaluates providers'

performance at a single point in time against external standards). Continuous quality improvement through monitoring, feedback and incentives (a "formative" approach, which provides on-going feedback to service providers on how they can improve their performance) is voluntary. On balance, the present system risks being focused too much on minimal requirements and contains little incentives for hospitals to seek continuous quality improvement. Voluntary accreditation is usually not linked to reimbursement, for example, and the lists of accredited providers are not widely known among the public and are therefore unlikely to influence patients' choice of hospital.

It would be helpful to ensure equal emphasis on mechanisms that aim at quality assurance and those that aim at quality improvement, to ensure a balanced approach. This will allow maximal gains from both summative and formative approaches to be exploited. There is much more that could be gained from the current preference for summative approaches – a key priority being greater transparency of information. Lists of accredited providers are not widely known among the public, for example, so cannot influence quality through the patient choice mechanism.

More effective governance of formative approaches is also needed. The Ministry of Health has little information about internal quality control systems in hospitals, for example. Although the percentage reporting having a named person responsible for managing the continuous improvement of quality of care and patient safety was 94.7%, this data was reported only by 19 hospitals. Likewise, only a minority of hospitals (around 20%) participate in a national reporting system for serious adverse events. The Czech Republic's earlier participation in the EU funded "Quality in Hospitals in Europe (DuQue)" project should hopefully deepen and extend continuous quality improvement activities in this sector.

There is limited co-operation between the other key stakeholders in the field of quality of care

Although the Czech Republic benefits from several stakeholders that are committed to delivering high-quality health care, the country lacks a coherent governance structure to consolidate and steer quality improvement initiatives. Responsibilities are split between central government (primarily the Ministry of Health), regional governments, health insurance funds and professional or scientific societies. Whilst this arrangement brings some advantages (regions and health insurance funds can design policies specifically tailored to their inhabitants and insurees, for example), it has also generated important misalignments. For example, whilst responsibility for accrediting service providers falls within the purview of regional

governments, they have very limited ability (and knowledge) to influence the actual design and implementation of these services. Additionally, regional governments have limited access to data on the processes or outcomes of the services they accredit. Co-operation between central and regional government can also be hampered by opposing politics.

Greater co-operation between the key stakeholders is needed. Opportunities for improved collaboration should be exploited between central and local governments (particularly around devising quality standards, monitoring frameworks and incentive structures), between regional governments and health insurance funds (particularly around designing pathways of care for patients with mixed, complex needs), and between health insurance funds (particularly around assessing the effectiveness and cost-effectiveness of new or existing initiatives).

Strengthening the role and perspective of primary care

The Czech Republic, like most OECD countries, is placing increasing emphasis on the role of primary care to assure integrated and co-ordinated care, especially for patients with complex needs. Progress in this area is hampered, though, by a lack of incentives for GPs to become proactively involved in co-ordinating care for complex patients, by a lack of eHealth initiatives to support sharing of information between various providers of care along the pathway of the patient. The lack of a list-system, where GPs are responsible for the care of a named list of patients, is another explanatory factor.

There is a case to examine whether the current payment system for Czech GPs, which is predominantly capitation-based, best deliver the kind of care that is needed. No single payment system is ideal, but a blend of systems which can respond to changing population health needs is important. The current system, in which 70% of GPs' income comes through risk-adjusted capitation fees, may not incentivise proactive care for patients with complex needs. Instead, the "disease management programmes" instituted in Germany and other countries may be a good model to follow. In this model, national and/or regional governments provide additional funds to health insurers conditional on them providing an enhanced level of care to people with complex needs. The programmes are voluntary (for both patients and providers). Once a patient is signed up, treatment must be provided in accordance with detailed clinical guidelines, following an individualised treatment plan that is designed by the patient and her doctor. Crucially, all patients have a named primary care physician, who plays a central role in co-ordinating and delivering care.

The Czech Republic's wider primary care workforce – that is nurses and allied health personnel – also have the potential for an increased role. There is extensive evidence around the benefits of expanding the role of primary care nurses in the management of long-term conditions, including primary and secondary prevention. Such changes would need to be accompanied by adequate training and governance structures, to assure the quality of services provided by nurses and other new groups.

Strengthening the role and perspective of the patient

Strengthening the role of the patient in assuring and improving the quality of care is a policy priority across all OECD countries. The Czech Republic scores very highly in the Commonwealth Fund's international survey of patient experience in ambulatory care. Around 95% of patients report being satisfied that their regular doctor spent enough time with them in the consultation, gave easy-to-understand explanations and gave opportunities to ask questions or raise concerns – amongst the highest reported rates from OECD countries. Routine monitoring of patient experiences at sub-national level, by clinic or by hospital, is not systematically performed however. Although the ministry is currently preparing a new system of measuring patients' experience of care, participation will be voluntary and not cover the whole inpatient care sector. A more rigorous approach, requiring all providers to show how they have measured and responded to service users' feedback is needed here.

Czech patient organisations are presently not realising their full potential through patient involvement on health services level, or decision making on system level. Indeed, weak engagement between patients and clinicians is signalled by a significantly lower percentage of Czech patients in the same Commonwealth survey saying they felt involved in decisions about their care (81.8% compared to an OECD average of 86.1%). Failure of patients to have greater voice is partially caused by the fragmentation of patient organisations. There are at present several competing umbrella patient organisation in the country and in case of several of them it is not entirely transparent how many patients they represent. In addition, patient organisations struggle with low funding on the one hand, and a complex regulatory environment around financing and connections to political parties on the other. As a result, they are often viewed as lobbyists not only on behalf of the patients, but often also on behalf of some other interested party. The Czech Republic should consider setting up more rigorous rules for financing of patient organisations and transparency of their ties with industry or political interest groups.

Strengthening the data infrastructure

The quantity of data gathered thorough the health care system in the Czech Republic is substantial but institutional fragmentation, insufficient emphasis on analysis and lack of health outcomes data hampers the ability of data infrastructure to contribute substantially to the gains in the quality of care. There are opportunities for the Czech invest new efforts in key issues such as stream-lining of the data collection effort (including greater use of IT and automated data collection), production of policy-oriented reports and output, exploring routes for greater linkage of data across databases. Collection of more clinical outcome data will also be instrumental in enabling better quality monitoring.

There is considerable fragmentation in how data is gathered and used, with little collaboration between institutions

A substantial amount of data is gathered across the Czech health care system. Most of this is used for billing and is thus primarily focused on volumes of care and resources within the system. The clinical data that are gathered relate almost largely to the registries established to monitor certain diseases (such as cancer) or vulnerable population groups (such as newborns). In broad terms, data are gathered by four groups – agencies belonging to the National Health Care Information System (NHCIS), health insurance funds, agencies such as regional governments or professional bodies which have a legal mandate to gather data in a narrowly defined area and, finally, agents having very little or no legal mandate to collect data, such as the voluntary quality registries run by scientific societies. Excluding these, and treating regional governments as a single entity, there are no less than 15 stakeholders requesting health data from providers and/or health professionals.

Collaboration between these stakeholders, however, is limited. This is partly a result of the multiple insurers' model but also the result of the lack of a comprehensive long-term strategy around data infrastructure. Lack of collaboration leads to waste and inefficiencies (for example, the national Institute for Health Information and Statistics, State Institute for Drug Control and KSRZIS, the co-ordinating agency for disease registers, each have distinct data collection processes and mechanisms despite each being under the direction of the Ministry of Health). It also hinders the bringing together of relevant data sets to undertake richer analyses of the quality and outcomes of care. It would be difficult in the Czech Republic, for example, to produce an analysis of waiting times between being referred by a GP and seeing a hospital specialist for chest pain, at national level or disaggregated by regions.

Setting aside data flows between health insurance funds, patients and providers, the Czech Republic should consider setting up a single agency, or fewer agencies than currently exist, responsible for data collection and redistribution to stakeholders. Progress toward this goal will naturally be incremental; in particular, certain specialist databases, such as that managed by the State Institute for Drug Control may need to continue separately for some time. Arrangements in Finland showcase what could be achieved. There, the National Institute for Health and Welfare (THL) is long established as the single institute responsible for collecting, analysing and disseminating an extensive range of health and social welfare statistics. It is able to produce mortality rates after a named health care episode at 7, 30, 90 and 365 days for example. In Denmark, recent reforms have consolidated the role of the Statens Serum Institut (SSI) as the central point for several data streams, with the specific intention of enabling more extensive data linkage.

As a deeper point, the Czech Republic should formulate and adopt a long-term strategy for the creation of an enhanced data infrastructure in the health care. This should be formulated with the participation of main political parties as well as patients, health insurance funds, providers and other stakeholders. In terms of content, a strategy should focus on key issues such as stream-lining of the data collection effort (including greater use of IT and automated data collection), production of policy-oriented reports, exploring routes for greater linkage of data across databases and collection of more clinical outcome data to inform better quality monitoring. A multilateral consensus on strategy should protect future infrastructure development from over-sensitivity to the political cycle and deliver long-term gains in quality monitoring and improvement.

Health data are rarely converted into reports or information that can be used by professionals or policy makers to improve quality

Although much data is gathered, the extent to which it is turned into usable reports or information which can inform policy making – particularly at service or local level – is unclear. The most common output from the national Institute for Health Information and Statistics (UZIS), for example, focuses on descriptive statistics of health service inputs (such as staff numbers) and some basic epidemiology around the prevalence of certain diseases. Likewise, data collected by disease-based or regional registries are used as feedback (on adherence to guidelines, for example) to a very limited extent. Lack of more policy-relevant and quality-focused analysis is partly due to limited in-house analytical capabilities in the most of the data gathering agencies. Given that managers, clinicians and patients do not see much useful output from the data they submit, data submission is not

perceived as a priority – further weakening the quality of the data gathered. Auditing or enforcement of the quality of submitted data is not much enforced (except for the purposes of billing).

The Czech Republic would benefit from more comprehensive and policy-oriented analysis of collected data. Only by producing relevant outputs can the policy makers and the public be persuaded to focus on enhancing of the current data infrastructure. The Czech authorities should therefore consider either putting more pressure on the data gathering agencies such as UZIS to provide more in-depth analysis or substantially widen the co-operation with academia and other stakeholders with analytical capability. The health insurance funds, which are now by many stakeholders seen as a mere redistributive agencies, should also assert themselves as organisations with strong analytical capabilities, able to support patients in demanding continuously improving care.

A more open culture surrounding the sharing, use and analysis of data could bring quality gains, as long as appropriate safeguards are in place

The openness of the Czech health care data infrastructure is relatively low – collaboration between academic partners and state institutions on data analysis is infrequent, for example, and patients have very limited access to information on the performance of local services. This stands in contrast to the principles of open government and citizen participation, which are increasingly embedded in governance systems across the OECD. The Czech authorities should, as a part of long-term strategy, outline the gradual process of opening the data to relevant stakeholders and the public.

One key avenue to explore would be transparent national comparison, or benchmarking, of provider performance. Aside from a lack of institutional or political will, there is no technical reason preventing Czech hospitals from comparing themselves with their peers, at least in some basic performance measures. Whilst Czech authorities should encourage moves in this direction, it is important to note that peer-comparison should always be accompanied by sufficient contextual information to allow a fair interpretation of relative performance, as well as careful assessment of the robustness and validity of the relevant data sources, since it is known that the quality of data supplied by the providers can vary significantly.

Collaboration with academic partners, or private sector bodies, in using public data for research purposes also has room for further development. Robust processes are needed to respond to data-sharing applications on a case-by-case basis, but the process should be transparent and not so cumbersome as to dissuade potentially beneficial collaborations.

A considerable number of OECD countries already have mechanisms in place to share anonymised public data with research partners. Belgium provides an informative parallel here. There, the seven health insurance organisations have entered into a partnership, backed by law, to create a permanent database of primary health care, a hospital and medications data for the purposes of monitoring treatment patterns and costs for patients with chronic diseases.

Electronic health records are still not universally in use and the future development seems uncertain

Electronic health records (EHR) are used relatively widely in Czech hospitals. Whilst around three quarters of GPs report using EHRs, a significant proportion still relies on paper-based records. Even where EHRs are used, however, transferability between providers and/or health insurance funds, as well as their accessibility to the patient, is underdeveloped. In common with many other OECD countries, the reasons for this lie in the fact that the different health insurance funds and health care providers developed distinct technologies, which are not always compatible.

Uncertainty regarding wider use of IT in health care in the future was created after a major project to promote use of EHRs by the Czech Republic's largest insurer VZP, floundered after adverse media coverage (centred on concerns over data security) caused uptake by only a few thousand individuals. Central government has attempted to develop a medium-term strategy around building the infrastructure to enable sharing of the clinical records. Its future remains unclear, however, due to uncertainty over funding. Nevertheless, smaller health insurance funds (e.g. the Skoda fund) continue to innovate in this area and have functioning projects of their own which allow, for example, online control of prescription and potential drug interactions. The Czech authorities need to support continued innovation in this area and dissemination of successful initiatives. By way of example, Estonia has particularly well-developed EHRs. There, primary care and medical specialist physician offices and hospitals are jointly able to send and receive lab tests and medical imaging results; to see and update an electronic medications lists, to see hospital inpatient and emergency room records.

Linkages between health data and other administrative databases could be extended, as in many other OECD countries

Linking records of the care an individual needs, or has received, across primary and secondary care or across health and social care is important to build a comprehensive and person-centred picture of the quality of care. In

the Czech Republic, every citizen has a unique identity number, the *rodné číslo*. Most health records contain either this number or the insuree number, which can be easily linked to it. The possibility for data linkage technically exists, therefore. As in many countries, however, proposals for more extensive data sharing have raised concerns over privacy and security. In recent years, initiatives aiming to link data or gather more comprehensive data in the Czech Republic were thwarted by the decisions of Constitutional Court. In case of pharmaceuticals, for example, SUKL was banned from maintaining a database holding unique identifiers of individual patients.

Relative to other OECD member states, however, the Czech Republic is at an earlier stage of resolving such issues. In particular, the absence of national legislation or guidelines for health data sharing, anonymisation and protection is delaying further development of the national data infrastructure. As a first step, the Czech Republic needs to develop an agreed regulatory framework to support secure use of data. Extensive experience from other OECD member states is available to guide this. In addition to the Belgian example cited earlier, Canada has also developed robust mechanisms to allow health data to be used to guide policy making. The Canadian Institute for Health Information grants approval for all projects involving the linkage of patient records across databases, considering the value of the project, restrictions to access to the linked data, the retention period for the linked data and protection of confidentiality of data in any published results, before granting approval. The inclusion of patient groups and those responsible for privacy protection monitoring in the Czech Republic (mainly Office for Personal Data Protection) will be vital to address concerns around misuse.

Establishing a single agency responsible for data collection, or fewer than currently exist as recommended above, should allow for easier and more secure data sharing between certain groups. Previous initiatives to move toward more effective inter-agency co-operation should be built upon. A case in point is the national reference centre for health insurers and hospitals (the *Národní Referenční Centrum,* or NRC). Although nominally set-up to ensure co-ordination across insurers and providers, the NRC's competencies and responsibilities around facilitating data sharing remain unclear. Strengthening the status of NRC, or allocating responsibility for data sharing to an established government agency such as UZIS, should allow more rapid evolution.

More outcome data should be gathered for the purposes of policy making and the evaluation of quality

For some diseases, such as cancer, national registries contain significant volumes of diagnostic, treatment and outcome data that can be used to measure the quality of care. Indeed, the Czech national cancer registry is one of the most comprehensive and longest established in the world. Nevertheless, the Czech Republic could do much more around gathering clinical data for broader groups of patients.

Historically, it has been the Czech medical societies who typically took the lead by setting up patient registers, on a voluntary-reporting basis. In order to promote system-wide quality monitoring and quality improvement, new initiatives are needed to extend the coverage these registers: both in terms of the numbers of diagnostic groups that have registers and the completeness of patient registration within each register. these registries need to be made compulsory. Without the compulsory data gathering those who do not perform well do not have the incentive to report data. Czech authorities should therefore take over the registries with fairly established data structure which are now on voluntary basis (and make them compulsory) and incentivise the medical societies and academia to create more new registries for the diseases, for which data-based quality control seems to be feasible and cost-effective.

Of note, the constitutional court called for specific justification for every type of collected data must be provided. In the light of relatively scarce analytical outputs this requirement is only emphasizing the need for greater focus on usage of data and production of policy-relevant reports.

Better quality in screening and preventive health care

The Czech Republic has some of the worst mortality figures for both IHD and CVA in the OECD. Death rates from IHD are 260.4 per 100 000 population (more than double the OECD average of 115.2) and from CVA are 106.4 per 100 000 population (compared to an OECD average of 69.1). Although Czech rates clusters alongside those of other central and eastern European states and have declined considerably over recent years, it is clear that there remains substantial progress to be made in preventing and treating these diseases.

Whilst the Czech Republic has established a range of preventive health care initiatives and has made substantial progress in reducing mortality from cancer and from cardiovascular disease, more could be done to improve the quality of preventive health care. A priority is to develop the information infrastructure underpinning preventive health care. At the same time, the

low rates of uptake of interventions proven to reduce mortality – such as cancer screening – point to the need to widen access and incentivise both to professionals and the public to engage in preventive health care more actively.

National screening programmes for breast, cervical and colorectal cancer have been established in the past decade, with mixed results on disease incidence

In common with most OECD countries, the Czech Republic has established a number of cancer screening programmes on a nationwide basis: breast cancer screening started in 2002, cervical cancer screening in 2008 and colorectal cancer screening in 2009. A feature common to all the screening programmes described above is that screening is opportunistic – that is, despite being nationwide, there is no population-based system of calling-in individuals within the target group for screening. From January 2014, a new programme will use details held in insurers' databases to write to individuals who have never attended a cancer screening examination, to inform of the screening tests available to them.

Cancer screening occurs within the broader framework of a network of comprehensive cancer care centres, a national cancer control plan and quality assurance criteria for screening centres. A particularly notable feature of the wider quality architecture surrounding cancer care is the Czech National Cancer Registry (CNCR). Established in 1977, this is a nationwide, obligatory reporting system and contains information on the tumour type, treatment modalities and clinical outcomes of more than 1.7 million malignant tumours.

Just over half (51.5%) of Czech women aged 20-69 participate in a cervical screening programme. Although this is not too dissimilar to the OECD average (59.8%) and shows marked improvement over the past decade, it is considerably less than many other countries achieve. The incidence of cervical cancer has been stable around 19-22/100 000 women over the past 20 years (equivalent to around 1 000 new cancers per year), leading researchers to the conclusion that few benefits of opportunistic cervical screening are manifest at the population level. In contrast, the proportion of breast cancer cases diagnosed at the earliest stage (stage 1) has increased from around 15% in the 1980s to around 40% today, suggesting better care, and there has been a stabilisation or slight decrease in colorectal cancer incidence rates.

A comprehensive health check is offered every two years to all adults, irrespective of personal risk profile

A ministerial decree stipulates that insurers offer all enrolees a medical check-up every two years and a dental check-up every six months. As well as taking a personal medical, social and occupational history, the medical check-up consists of physical examination, urinalysis and tests for blood sugar and cholesterol levels. An electrocardiogram is performed on all patients aged over 40, every four years. This comprehensive medical check-up is generally performed by GPs.

There is no quality oversight currently in place for this health check, however, and a cost-effectiveness analysis of the benefits or otherwise of offering such comprehensive, universal screening has not been undertaken. According to syntheses of international evidence, cost-effectiveness of untargeted screening such as that offered in the Czech Republic is likely to be low. Furthermore, European guidelines on cardiovascular disease prevention do not support universal screening. The guidelines recommend that risk is assessed on the basis of age, sex, smoking status, blood pressure and total cholesterol – rendering some of the elements offered in the Czech programme, such as the electrocardiogram, unnecessary.

Primary preventive efforts are failing – especially amongst children

A particularly worrying feature is the increasing prevalence of the most important cardiovascular risk factors in the Czech Republic over the last 20 years. Alcohol consumption has increased by two litres per capita per year (compared to an average reduction of four litres across the OECD) and over the last decade, rates of obesity have increased by 50%, one of the steepest increases in the OECD.

Within the Czech Republic, 28% of 15-year-old girls and 22% boys of the same age report smoking at least once a week, amongst the highest rates in the OECD. High rates of drunkenness are also reported, with boys reporting higher than girls in common with most other OECD countries. Both smoking and drinking are increasing amongst Czech youths – clearly a cause for concern. A similar picture of worsening children's health is also seen with respect to obesity. Over the past decade, self-reported overweight or obesity amongst Czech 15-year-olds increased from 9% to 15%, one of the steepest increases in the OECD.

Rates of obesity, smoking and harmful alcohol consumption are determined by a complex array of factors – many of which lie outside the influence of the health sector. Nevertheless, these deteriorating public health statistics must be taken as evidence of the failure, to a greater or lesser

extent, of primary preventive programmes. The Czech Republic has in place national strategies on nutrition, on the promotion of sport and physical activity and on the prevention and treatment of obesity. Particularly ambitious policy initiatives from other OECD countries include Hungary's taxation of unhealthy food, South Korea's programme to reformulate foods containing trans-fats and the EPODE programme in France, Belgium and Spain. This programme, partly funded by industry, aims to prevent childhood obesity by involving a range of stakeholders within individual local communities.

Additional effort is needed to increase uptake of cancer screening

Currently, individuals' attendance for cancer screening is largely driven by their General Practitioner reminding them to attend when a test is due. This, as noted, has been associated with relatively low screening uptake. Although a new initiative will write to individuals who have not recently attended a cancer screening examination to inform of the screening tests available, still lacking is a national population-based system that issues personalised invitations to all Czech citizens regularly, based on age, gender and screening history.

Alongside the new initiative of writing to those who have never been screened, supply-side incentives may have a role. The Institute of Biostatistics and Analyses at Masaryk University provides mammography centres with regular reports on detection rates, stage at diagnosis etc. to enable them to monitor and improve screening effectiveness. This model provides a good basis upon which provider-feedback could be extended to other screening programmes. The ability to benchmark and compare local performance against peers will be vital.

Particular attention should be paid to increasing rates of screening uptake in socially disadvantaged (such as people with disabilities, or people from less wealthy, less educated or ethnic and linguistic minority groups) groups. Programmes emphasizing one-to-one and group education are likely to be most beneficial, and might initially be based on geographically identified areas of high need. Time-limited, targeted financial incentives may also have a role.

If value for money from the biennial health check cannot be demonstrated, funds supporting it should be reinvested in more effective means prevention

The cost-effectiveness of the biennial population-level screening of blood pressure, cholesterol and other cardiovascular risk factors should be independently evaluated within the Czech context. If the evaluation

demonstrates poor cost-effectiveness, consideration should be given to abandoning the programme or targeting it more closely and reinvesting any savings made in other more effective means of primary prevention. New initiatives focussing on reducing the prevalence of smoking, excess weight and harmful alcohol consumption, and initiatives focussed early in the life course on children, adolescents and families are especially important in the Czech context.

Renewed attention is also needed around secondary prevention. Although guidelines for secondary prevention of cardiovascular risk exist, nothing is known about adherence to them. Given high rates of cardiovascular mortality and rates of admission to hospital for diabetes relative to other OECD countries, it is almost certain that there is substantial room for further gains here, building upon the impressive mortality reductions that the Czech Republic has achieved over the past decade.

The Czech Republic lacks a national health technology assessment (HTA) agency and so has relatively little experience or few established procedures for conducting such cost-effectiveness assessments. It is likely, then, that a University or private contractor will be needed to carry out such an evaluation. Nevertheless, the lack of a national HTA institute stands in marked contrast to most other OECD countries and renewed effort is needed to consider how one could be established, especially given current fiscal constraints.

The Czech Republic's health insurance funds should work together to deliver preventive health care more effectively, particularly by building data infrastructure

Currently, there is a dearth of information on the quality of prevention in the Czech Republic. Regarding secondary prevention, for example, only health care activities are documented (for reimbursement purposes), without systematic monitoring of outcomes. The seven health insurance agencies have a key role to play in improving data infrastructure, since it is they who have the most detailed knowledge of individual patients' diagnoses, health needs and health care episodes. In earlier years, some insurers gave doctors feedback on compliance with guidelines around diabetes management. Anecdotally, this was reported to have been effective in improving the quality of care, but was discontinued for lack of funding. Resources should be found to re-start this programme and institutionalise it across all insurers and for a wider set of chronic conditions.

There is also scope to improve the data infrastructure surrounding cancer care. Although the CNCR publishes useful epidemiological data, including some assessment of the impact of screening through monitoring

the clinical stage at which cancer is diagnosed, a much richer assessment of the screening programmes could be achieved if screening data were to be linked to clinical outcome data held by CNCR. The proportion of incident cancers who had undergone recent screening, or who had never been screened, could be calculated for example.

It is also in the insurers' interests to invest in a cost-effectiveness assessment of the general health check and, more broadly, to support more formal development of health technology assessment in the Czech Republic, at a national level. Insurers should co-ordinate and pool their resources in this regard, to avoid inefficient duplication of cost-effectiveness assessments and stretching the resources of the smaller insurance funds too far. Insurers should take a lead role in designing and delivering health promotion programmes, with the aim of reducing the prevalence of risk factors such as smoking, obesity and alcohol abuse amongst adults and children. Cost-effective models of delivery may include one-to-one counselling, using a full range of trained personnel (rather than solely doctors), with special attention to disadvantaged groups.

Improving care for patients with diabetes and metabolic syndrome

In the face of rising diabetes prevalence, a complex and costly disease, the Czech Republic must look to strengthening all phases of care: prevention, early detection and treatment. Some shifts in the organisation of care will be needed: GPs should take on a greater role in managing diabetes; well-co-ordinated and patient-centred care should be prioritised; and patient education and self-management should be promoted.

The increasing prevalence of diabetes and its underlying risk factors are a cause for concern

In the Czech Republic, as in many OECD countries, diabetes is a leading cause of morbidity, associated with significant co-morbidities and considerable expenditure. Prevalence of all diabetes (type 1 and type 2) is estimated at 8%, higher than the OECD average of 6.9% (2013). The burden of diabetes is rising, in line with increasing rates of obesity, ageing populations, and changing lifestyles.

The prevalence of risk factors which predispose to type 2 diabetes is worrying. Obesity rates have increased from 14% in 2000 to 21% in 2011, and are now higher than the OECD average (17.2%). In a national health survey, almost 50% of males and 40% of females were found to have high blood pressure, with average total cholesterol levels being higher than 5 mmol/L in both groups, indicating increased risk of cardiovascular

disease. In addition, almost one in four adults smoke, compared to one in five across the OECD more broadly. Of particular concern is the fact that the Czech Republic is the only country in which reported smoking rates are rising.

Given these trends, prevention efforts to tackle diabetes risk factors in the Czech Republic could be scaled up. At present, the Czech Republic is relying mostly on health education and promotion approaches, and some very limited programmes in insurance funds, which have not been evaluated. A wider range of effective approaches is likely needed, including a larger number of stakeholders – notably insurance funds, employers, and patient groups – to maximise the potential gains to be had from effective prevention interventions.

There are some signs of improvement in the quality of diabetes care, although rates of complications remain high

The total mortality of diabetic patients has been falling steadily across the last decade, as well as the relative prevalence of macrovascular complications – both welcome signs of improving care. The prevalence of chronic heart disease amongst patients with type 2 diabetes, for example, fell from over 40% in 2001 to below 30% in 2008. The picture is less encouraging, however, for other complications. The incidence of diabetic retinopathy, for example, appears to be increasing. In 2009, in total 90 586 diabetes patients with diabetic retinopathy were registered in the Czech Republic (11.7%); furthermore, some degree of renal impairment can be found in about a half of diabetic patients. Although these figures may reflect better detection rather than a real increase in complications, this high rate of complications remains a cause for concern.

Effective management of diabetes is key to the prevention of complications. Regular checks, notably of glycated haemoglobin level (HbA1c) as well as blood cholesterol and blood pressure, can indicate whether there is an increased risk of complications, and need for a change or intensification of treatment. Following Czech clinical guidelines HbA1c should be monitored at least yearly, but in 2006 but HbA1c was measured just 0.8 times per year on average amongst Czech patients, with over 50% of all patients not screened at all. Of those screened, only 5% patients with type 2 diabetes reach satisfactory values of HbA1c, blood cholesterol and blood pressure. Inadequate monitoring and control can lead to acute deterioration, which may require hospital admission. This may partly explain why admission rates for diabetes are higher in the Czech Republic (221.0 admissions per 100 000 population) than the OECD average (164.4).

Improving the data infrastructure underpinning diabetic care is a priority

The data infrastructure underpinning diabetic care is weak and inhibits continuous quality improvement. Currently, diabetologists are required to submit basic annual reports to insurers, covering the number of diabetes patients, treatment in place and number of microvascular complications. Quality measures for diabetes are under developed and not systematically measured, with different insurers taking different approaches. Whilst the Czech Republic has a national type 1 diabetes and a gestational diabetes register (based only on voluntary submissions), there is at present no register for type 2 diabetes – the most prevalent form of diabetes. Lack of a register means that the patterns and outcomes of care for diabetics at an aggregate level cannot be known, and that the management of an individual patient cannot audited against peers. Individual clinicians, hospitals and/or insurance funds may maintain partial registers, but differences in data infrastructure mean that benchmarking quality of care against other hospitals cannot be done, nor data linked across ambulatory and specialist care settings.

A richer data infrastructure covering diabetes care would help patients, practitioners and insurance funds identify shortcomings or risks in the quality of care. A priority would be to start work on a national register of patients with type 2 diabetes, to measure the quality and outcomes of care. In countries where quality indicators are established and collected nationally, such information can be used to identify weaknesses in care quality nationally and, potentially, at a local or hospital or practitioner level. A further priority is to maximise exploitation of all existing data. Data should be systematically fed back to practitioners, hospitals, and insurance funds, and its use to identify areas of risk or shortcomings should be encouraged. The Czech Republic should also work towards more participation in international benchmarking, which can present an opportunity to learn from the experiences, successes and failures of other countries, and to learn more about how care standards measure up to those of comparable countries.

Primary care's role in managing diabetes should be strengthened and better incentivised, particularly around prevention

A significant proportion of diabetic patients in the Czech Republic are managed by hospital specialists, with primary care professionals often taking a subsidiary role. The diabetic patient pathway, for example, triggers referral to a specialist more quickly than would be the norm in many other OECD countries. Additionally, current primary care payment mechanisms, based predominantly on a capitation, are likely to act as a disincentive for

GPs to take on management of chronic conditions or more complex cases. A treatment model dominated by hospital-based care contrasts with the model highlighted during the recent European Diabetes Leadership Forum, which recommended a co-ordinated, life course approach anchored in primary care. The high rate of hospitalisations referred to earlier may point to weak management at a primary care level, suggesting the need for improvement in the quality of primary care.

There is scope for GPs in the Czech Republic to take on a bigger role in the management of diabetes and better co-ordinate with specialists in the management of complex cases. The increased role of GPs will be most effective alongside efforts to improve co-ordination of care for diabetes across care levels, and through the prioritisation of an integrated patient-centred approach. "Disease Management Programmes", widely used in some OECD countries such as Germany or the Netherlands, and associated with reasonable evidence of cost reductions and better quality care, are not widely offered in the Czech Republic. One of the few attempts to foster better co-ordination comes from the Skoda insurance fund. This fund covers a small population of 125 000 concentrated in one region and has actively engaged GPs. It has promoted information exchange around chronic conditions including diabetes, and supported training, collaboration and dialogue across the patient pathway. More insurance funds should be looking to promote similar co-ordinated disease management approaches, which can be successful on a larger scale, as has been seen in other OECD countries.

Better patient education and self-management practices are needed

As part of responding to the growing burden of diabetes care in the Czech Republic, more patient self-management is needed, and efforts to support patients in taking on these responsibilities are called for. Diabetes is a lifestyle disease, which requires individuals with diabetes to appropriately manage their condition, making daily decisions about nutrition, activity and medication. Self-care skills, such as glucose monitoring, foot examination, and taking medication are also usually important components, but do not appear well established in the Czech Republic. Patients should be supported by GPs and specialist health services to take on a more active role in managing their condition. Appropriate patient education should take place at each step of the care pathway, particularly upon diagnosis and in the initial months thereafter. When patients are offered education sessions or meetings at diabetes centres, as is often the case, it may be appropriate if these were followed-up by a meeting with the GP, to answer any questions that the patient has and to ensure that they feel ready to effectively self-manage their condition.

While the provision of appropriate and high-quality patient education is the principal responsibility of the Czech health services, there is a greater role for patient organisations to play. Czech patient organisations could do more to support diabetes sufferers. In other OECD countries patient groups are often a valuable source of information and support, and can help support diabetic individuals make the lifestyle changes that their condition demands. In addition, patient organisations could be more effective campaigners for quality improvements. Although the Czech Diabetes Society has a guideline for patient self-management, much of the work of patient organisations in the Czech Republic focuses on entitlements, e.g. spa treatments, rather than on quality of care. Patients and patient organisations could take the lead in demanding quality improvements for their care. If supported by an effective patient organisation, patients could become more confident in advocating for their own care, and in pushing for support to self-manage their condition.

Policy recommendations for improving the quality of health care in the Czech Republic

The Czech Republic's foremost aim should be to move to a quality architecture that allows the continuous, detailed and transparent measurement of health service performance. A more sophisticated data infrastructure will be needed to achieve this, as well as greater consistency of vision, policies and co-ordination across central government authorities.

1. Improve general quality of care policies:

- Strengthen the governance around health care quality by:
  - developing a sustained, coherent and ambitious strategy for quality governance, that is focussed on continuous measurement of quality outcomes across all providers of care
  - clarifying the roles and mutual accountabilities between the Ministry of Health, regional governments, health insurance funds and other stakeholders, particularly around quality assurance of individual services.
- Develop a more ambitious and sophisticated quality architecture capable of continuous quality monitoring and improvement by:
  - broadening the reach of current summative approaches, such as minimum standards accreditation, to all health care providers
  - introducing a broader range of formative approaches, such as a national reporting and learning system for adverse events
  - considering setting national performance targets and producing a regular reports on quality and safety in the Czech health care System.

Policy recommendations for improving the quality of health care in the Czech Republic *(cont.)*

- Strengthening the role of primary care and patients in quality improvement by:
  - examining whether current payment structures, dominated by capitation, effectively support proactive, co-ordinated and continuous care for patients with complex needs
  - strengthening continuing medical education and supporting the wider primary care workforce, particularly nurses, to deliver an enhanced level of care
  - ensuring that patient organisations have an independent voice and contribute effectively to local and national service reforms and quality monitoring.

2. Strengthening the data infrastructure:

- Formulate a long-term strategy for the creation of an enhanced data infrastructure to underpin health care quality measurement, which focuses on:
  - building a data infrastructure that is capable of continuously monitoring the quality of care, with the aim of improving quality across all sectors of care
  - reducing and streamlining the fragmented institutional framework of data gathering that currently exists, reducing for example the number of agencies responsible for collecting and analysing data
  - developing legislation or guidelines to facilitate safe data sharing or data linkage across databases, to allow a richer picture of individuals' pathway of care to be built.
- Better use existing data to drive continuous quality improvements by:
  - producing more sophisticated analyses, beyond basic descriptive statistics, that give a detailed picture of the health needs, treatments and outcomes of particular patient groups
  - identifying best practices and opportunities for improvement through transparent comparison of quality indicators across regions or providers
  - developing policies to allow more data sharing amongst insurers, providers, academic partners and patient groups to encourage a culture of transparency and policy-oriented data use.
- Invest in new sources of data and new information technologies by:
  - supporting continued evolution of patient registers, with an emphasis on collecting more measures of health care outcomes, as well as activity
  - encouraging systematic use of electronic health records across all sectors, including primary care whilst addressing public concerns over the security of electronic health records
  - aiming for more extensive participation in international benchmarking of health care quality.

Policy recommendations for improving the quality of health care in the Czech Republic *(cont.)*

3. Better quality screening and prevention

- Augment the benefit of population cancer screening programmes by:
  - closely monitoring the impact of the programme to write to adults who have not recently participated in cancer screening
  - aiming to move to a system of continuous population call-recall as soon as feasible and paying particular attention to screening uptake amongst disadvantaged groups
  - consider physician and provider feedback for all cancer screening programmes, such as open comparison of local screening rates, and other supply-side incentives to improve uptake
  - linking screening data to clinical outcome data to build a richer picture of the benefits of screening and gaps in coverage.
- Ensure effectiveness and value for money in preventive health programmes by:
  - assessing the cost-effectiveness of the universal cardiovascular health check and abandoning it or targeting it more closely if value for money is shown to be poor
  - investing in new preventive initiatives which international evidence has been shown to be cost-effective, such as one-to-one counselling based on individual risk
  - using current secondary prevention guidelines as the basis for developing indicator sets which can be used to monitor the extent to which guidelines are followed in practice
  - renewing a focus on preventive health care children, adolescents and families in order to address high rates of overweight, smoking and harmful alcohol consumption.

4. Improving care for patients with diabetes and metabolic syndrome

- Facilitate deeper analysis of diabetes quality of care with a stronger data infrastructure:
  - establishing a national patient register for type 2 diabetes, and continue to strengthen existing type 1 and gestational diabetes registers
  - put in place a more comprehensive set of quality measures for diabetes, and promote the systematic collection of comparable data on their use
  - ensure that available information is actively used to improve quality of care for diabetes, and is fed back to practitioners, hospitals, and insurance funds.

Policy recommendations for improving the quality of health care in the Czech Republic *(cont.)*

- Developing a greater role for primary care professionals in providing and co-ordinating care for diabetic patients by:
  - putting in place incentive structures, including payment systems, that encourage GPs to take on increased responsibilities for diabetes patients and other chronic conditions
  - ensuring that GPs have the skills and support that they need to provide high-quality care and take on more complex cases, including appropriate training, and information sharing
  - exploring the potential for introducing Disease Management Programmes to help promote well-co-ordinated care.
- Put in place better patient education and self-management practices:
  - providing consistent support and education for patients, through high-quality educational programmes and ongoing follow up with GPs and other practitioners
  - supporting national and local patient groups to take on an expanded role as seen in other OECD countries, providing patient education and support, and advocating for better care.

Chapter 1

Quality of care policies in the Czech Republic

Life expectancy in the Czech Republic is higher than in several neighbouring countries and infant mortality rates are amongst the lowest in the OECD. Some indicators of the quality of care show very strong performance – 30-day mortality after acute myocardial infarction is below average and stroke 30-day mortality is only slightly above the OECD average. Yet other indicators are less reassuring – survival rates after a diagnosis of cancer, for example, are poor.

This chapter reviews the policies and mechanisms in place to measure and improve the quality of health care in the Czech Republic. Accreditation of facilities is well developed and some specific initiatives, such as the national cancer registry, are also advanced. Nevertheless, compared with other OECD countries, other measures such as regular, open comparison of local quality indicators are less developed.

The Czech Republic's foremost aim should be to move to a quality architecture that allows the continuous, detailed and transparent measurement of health service performance. A more sophisticated data infrastructure will be needed to achieve this, as well as greater consistency of vision, policies and co-ordination across central government authorities.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1.1. Introduction

Quality issues have gained importance across all OECD countries as governments and the public increasingly focus on what is being delivered in exchange for major public investments in health care. This chapter seeks to profile the key policies and strategies that the Czech Republic has used to encourage improvements in the quality of health care.

The description of policies in this chapter is structured according to a framework for categorising quality policies detailed in Table 1.1, below with the exception of health data infrastructure which is described and assessed independently in the chapter 2. After providing initial background information, this chapter will address the legislative framework and governance for quality of care in the Czech Republic; the quality assurance of health system inputs (such as health care professionals, technologies and health care services); policies for monitoring and standardising quality of care; the extent of patient involvement.

Table 1.1. A typology of health care policies that influence health care quality

Policy	Examples
Health system design	Accountability of actors, allocation of responsibilities, legislation
Health system input (professionals, organisations, technologies)	Professional licensing, accreditation of health care organisations, quality assurance of drugs and medical devices
Health system monitoring and standardisation of practice	Measurement of quality of care, national standards and guidelines, national audit studies and reports on performance
Improvement (national programmes, hospital programmes and incentives)	National programmes on quality and safety, pay for performance in hospital care, examples of improvement programmes within institutions

1.2. Design, costs and outcomes in the Czech health care system

A short description of the Czech health care system is provided in Box 1.1. For more detailed information on the Czech health system, the European Observatory's Health Systems in Transition report on the Czech Republic offers a useful source of information (Alexa et al., forthcoming).

Box 1.1. Overview of the Czech health system

The Czech Republic's health system is based on health insurance and a basic universal benefit package for all insured individuals. The State holds responsibility for general regulation and pays health insurance for certain segments of population (e.g. children, students, retirees). Responsibility for availability of care is divided between central and regional governments, and health insurance funds. While central government is mostly responsible for public health, the regional governments guarantee the accessibility of individual care in their geographic area, and health insurance funds are obliged to guarantee the care of their clients within certain distance and time limits.

Most of the acute care bed capacity is located in facilities owned either by State or regional governments. Private inpatient providers generally operate smaller, specialised hospitals. Outpatient facilities are usually private. Private as well as publicly owned facilities usually have contracts with health insurance funds, which guide scope and volumes of care, and can serve as a tool for planning.

Access to a wide range of health services is free of charge, apart from small user fees for in some instances. Patients are free to choose a provider (within those who have contract with their health insurance fund), and no referral is needed to access specialised services. The health system is financed through mandatory health insurance which represents bulk of the public financing. Some capital investments in public hospitals are financed by general taxation through state or regional budgets.

Total health care expenditure in the Czech Republic is 7.5% of GDP, lower than the average 9.3% across other European OECD countries. Public expenditures account for 83.9% of total health expenditure, compared to an average of 75.9% across other European OECD countries. Out-of-pocket payments (OOP) account for much of the remaining financing (15% of total expenditure, compared to a 18% on average among other European OECD countries). The share of OOP spending in the Czech Republic has increased by 5.1% over the past decade, the second biggest increase among all of the OECD countries.

The introduction of user fees in 2008 substantially increased the share of OOP payments. The primary goal was to curb unnecessary demand and increase the revenues of the system. Recent increases were considered partially unconstitutional by the Constitutional Court. The Czech constitution contains a provision guaranteeing everyone the free access to health care. This creates a strong mandate to monitor accessibility of care, and also puts some limitations on co-payments.

There have been some attempts recently to reduce the number of acute care beds, which remains quite high at 6.8 per 1 000 population compared to an OECD average of 5. The decrease has been gradual, however, and overall occupancy rate still remains below the OECD average.

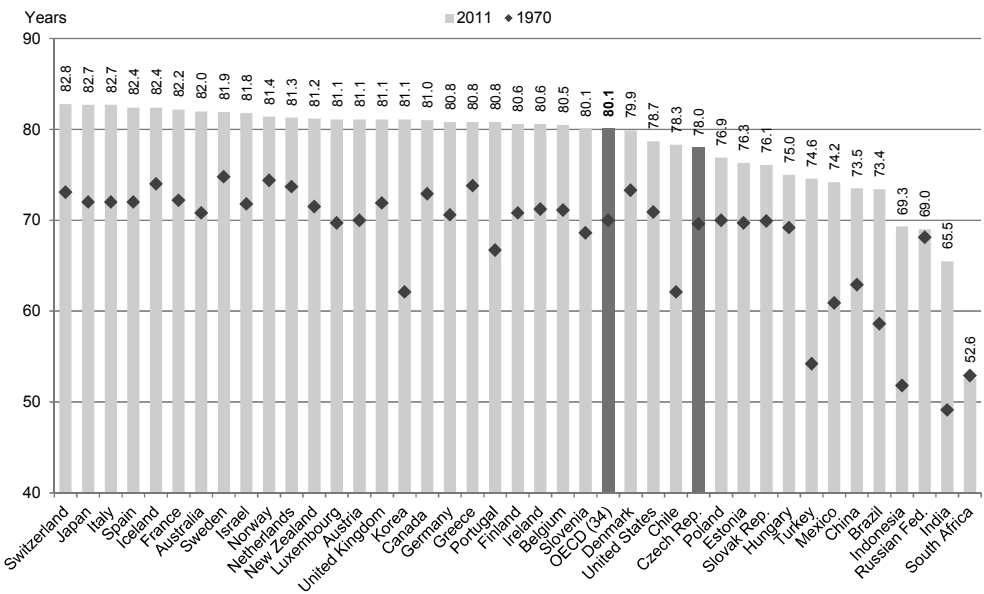
Relative to its population, the Czech Republic has slightly more doctors than most European OECD countries, with 3.6 practicing doctors per 1 000 people. Apart from the Prague region, the geographic distribution of doctors is relatively uniform and does not appear to present a barrier to access to care. The Prague region is quite unique and has (apart from Washington D.C. and Athens) the highest density of doctors per capita for any OECD region. Nurses constitute the largest group of health workers and the number of nurses has increased in recent decades. Nevertheless, the Czech Republic has still less nurses per capita than the OECD average (8.0 or 8.4 if midwifes are included compared to 8.8 per 1 000 population).

Source: Alexa, J. et al. (forthcoming), "Czech Republic: Health System Review", *Health Systems in Transition*; OECD (2013), *Health at a Glance 2013: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/health_glance-2013-en.

Health status in the Czech Republic

With an average life expectancy at birth of 78 years and an increase in life expectancy between 1970-2011 of 8.4 years, the Czech Republic is close to the OECD average for life expectancy (OECD, 2013a). However, perceived health status is significantly lower than the average with only three out of five people reporting being in good health. Mortality rates from heart disease are among the highest in the OECD. Smoking rates among adults are high but more worryingly the Czech Republic is the only OECD country with a documented increase in the last decade and has the second highest smoking rates among 15-year-olds, (OECD, 2013a).

Figure 1.1. Life expectancy at birth, 1970 and 2011 (or nearest year)



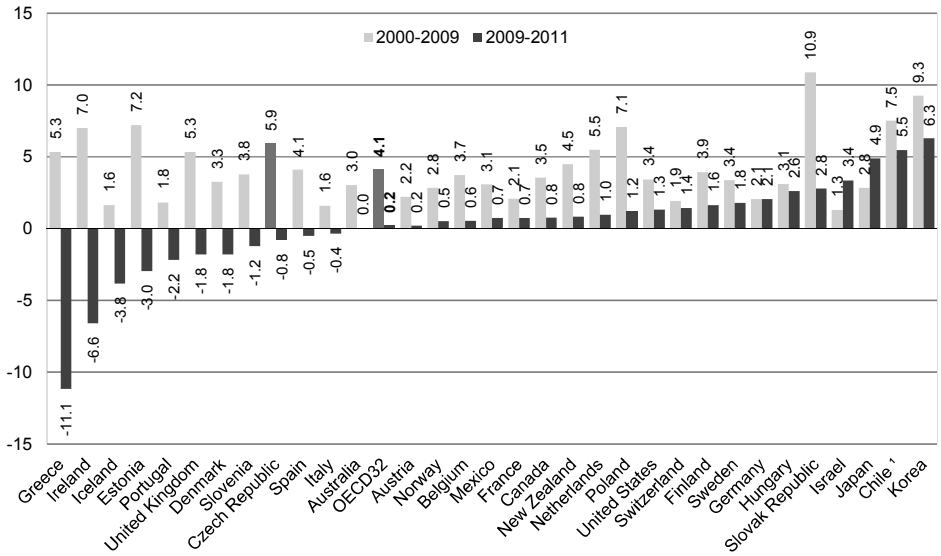
Source: *OECD Health Statistics 2013,* http://dx.doi.org/10.1787/health-data-en; World Bank and national sources for non-OECD countries.

However, the Czech Republic is still one of the best performers among the Visegrad countries[1] in terms of several key health status indicators. For example, life expectancy in the Czech Republic is higher than in Poland (76.9 years), Slovak Republic (76.1 years) or Hungary (75 years). The Czech Republic is also among the best performers in the OECD in terms of infant mortality (2.7 per 1000 live births, compared to OECD average of 4.1).

Health spending in the Czech Republic

As a share of GDP, the Czech Republic spent 7.5% on health in 2011, significantly below the OECD average of 9.3%. Total health expenditure per capita was USD PPP 1 966 in 2011, significantly lower than the OECD average of USD 3 322, but higher than those of other Visegrad countries. The Czech Republic's per capita spending tends to be somewhat lower than other countries with a comparable level of GPD per capita, such as Portugal or Greece. The Czech Republic experienced growth in spending on health care in the period 2000-09 of around 6% per year, but, similarly to other OECD countries affected by the economic and financial crisis, most recent OECD data show a decline in spending (2009-11) (Figure 1.2).

Figure 1.2. Annual average growth rate in per capita health expenditure, real terms, 2000-11 (or nearest year)



1. CPI used as deflator.

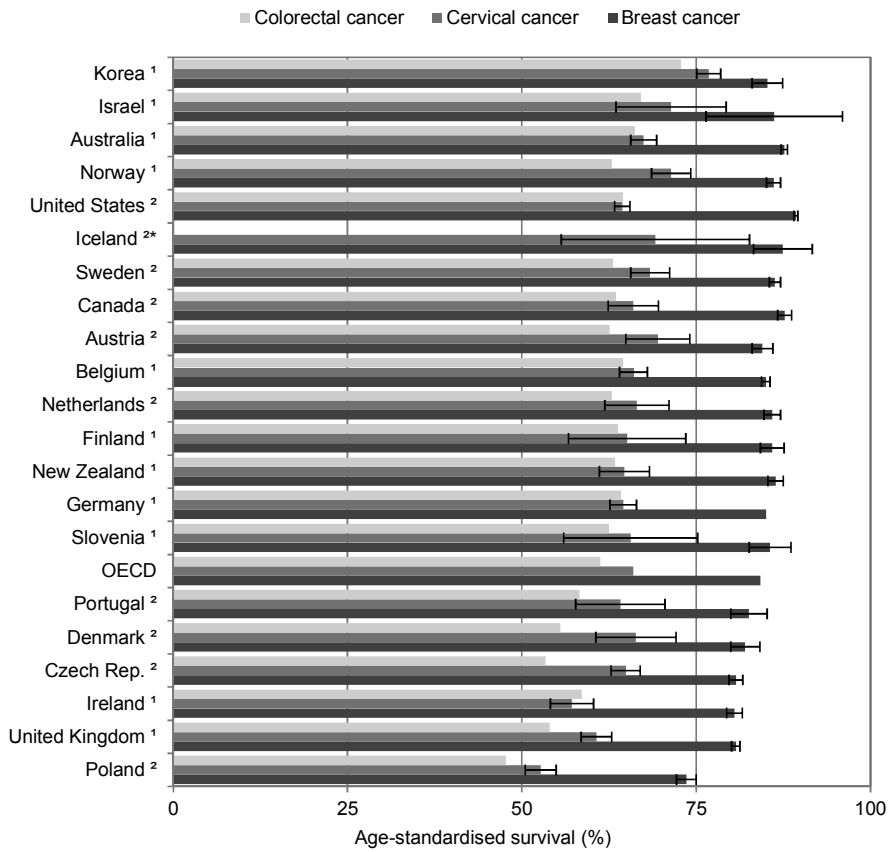
Source: *OECD Health Statistics 2013,* http://dx.doi.org/10.1787/health-data-en.

Internationally comparable indicators of the quality of health care show a mixed picture

Regarding indicators of the quality of health care, the Czech Republic shows a mixed picture. Several of the OECD's set of health care quality indicators are below the OECD average. Five-year survival estimates after a

diagnosis of breast, colorectal or cervical cancer, for example, show substantial room for improvement compared to many OECD peers (Figure 1.3). It should be noted, however, that cancer stage-standardised survival rates are suggest that late diagnosis is an important underlying cause of low survival rates. Screening and early diagnosis of cancer and other long-term conditions are the focus of Chapters 3 and 4.

Figure 1.3. Cancer five-year relative survival, 2006-11 (or nearest period)



Note: 95% confidence intervals represented by |—|.

1. Period analysis.

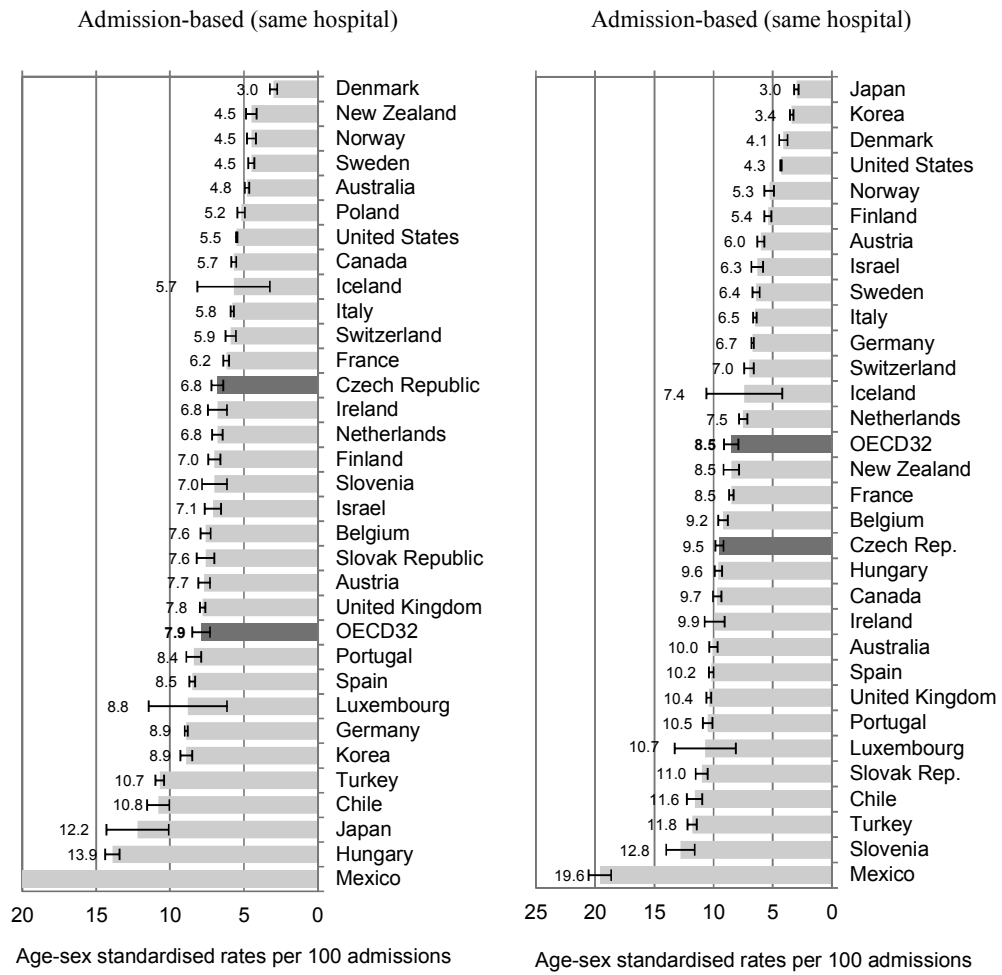
2. Cohort analysis.

* Three-period average.

Source: OECD (2013), *Health at a Glance 2013: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/health_glance-2013-en.

On some indicators of acute care, the Czech Republic appears to be doing well, for example the 30-day mortality for acute myocardial infarction is reported to be below the OECD average and the stroke 30-day mortality (Figure 1.4) is only slightly above the OECD average.

Figure 1.4. Acute myocardial infarction – case fatality in 30 days after admission in adults aged 45 years and over (left) and ischemic stroke (right) in hospital case fatality rates



Note: 95% confidence intervals represented by |—|.

Source: OECD (2013), *Health at a Glance 2013: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/health_glance-2013-en.

Indicators on potential preventable hospital admissions, which offer a measure of the functioning of the primary care system, display a mixed picture for the Czech Republic, with relatively high admission rates for diabetes but below the OECD average for asthma and COPD (see also Chapter 4).

Some of the quality indicators on patient safety (e.g. obstetric trauma or surgical complications) are difficult to assess for the Czech Republic given its current data infrastructure and difficulties with data linkage (see also Chapter 2).

1.3. Governance for quality of health care in the Czech Republic

Although quality of care is an important issue for the Czechs, with many policy documents explicitly making reference to improving quality of care, the Czech health system only partially delegates responsibility for quality of care to its various stakeholders. In the shift towards a health system governance model focussed on the quality of care, significant progress needs to be made. Effective co-operation between government authorities, the health insurance funds and health care providers will be essential to make this happen.

A governance model with three main stakeholders (Ministry of Health, the Czech regions and health insurers) with unclear mutual responsibilities with respect to quality of care

The Czech governance model, with responsibilities divided among the central government (primarily the Ministry of Health), regional governments and health insurance funds has some advantages, since regions and health insurance funds can design policies specifically tailored to their inhabitants and insurees, however this fragmentation might also make it more difficult to co-operate on national quality initiatives. For instance, while the responsibility for granting authorisation to provide services is within the purview of regional governments, they have very limited ability to influence the actual design and delivery of health care services and can only assess the inputs (allocating staff and technical equipment to meet legal requirements) rather than the process or outcomes of care.

The Ministry of Health is the principal health authority, and is responsible for legislation on health care provisions, personnel, hospitals and pharmacies, medical products, vaccinations, pregnancy, child health care and patients' rights. In addition to its function as a legislator, the Ministry of Health manages several of the biggest health care facilities in the country – university hospitals; several specialised centres and most of the mental health hospitals.

The governance structure of health insurance funds makes them relatively independent of the government with the exception of the biggest one – the General Health Insurance Fund (VZP), which has a Board consisting of members of the Chamber of Deputies and members appointed by the government. The boards of the other six health insurance funds consist mainly of representatives of insurees and their employers (a minority also appointed by the government). The regional governments, apart from the responsibilities mentioned above, also own or manage a substantial part of the country's inpatient facilities (approximately 35% as a share of remuneration for inpatient services in 2012). Most of the other large inpatient facilities are managed by the Ministry of Health.

The legal framework supporting health care quality has been strengthened, but there is still room for improvement especially by redirecting focus towards the outcomes of health care

The Czech Health Services Act (in effect from April 2012) forms the main legislative framework for the provision of health care, and contains requirements connected to quality of care. The Act (and related by-laws) establish basic requirements in terms of number of personnel for various modes of care, requirements for the education of medical personnel, requirements for numbers and technical parameters of medical devices available in order to provide certain types of care, and the rights and obligations of patients. The Act also contains a provision for quality control; however the external evaluation of quality and security of the care beyond evaluation of resources is still a voluntary process.

In general, legislation on quality of care in the Czech Republic is not especially detailed, although recent legislation made substantial steps in terms of greater detail for inpatient care. Regarding overall system governance, much reliance is currently placed on the mandatory assurance of minimal safety and quality standards through one-time accreditation (a "summative" approach – which evaluates providers' performance at a single point in time against external standards). Continuous quality improvement through monitoring, feedback and incentives (a "formative" approach – which provides on-going feedback to service providers on how they can improve their performance) is voluntary. On balance, the present system risks being focused too much on minimal requirements and contains little incentives for hospitals to seek continuous quality improvement. Furthermore, accreditation beyond the basic mandatory assessment of inputs is voluntarily undertaken and provided by external third parties, licensed by the Ministry of Health. Given that the requirements of various accreditors vary (although the minimum is set out in a ministerial by-law) the ease of gaining a certificate of voluntary further accreditation differs as a result.

One policy option would be to ensure equal emphasis on mechanisms that aim at quality assurance and those that aim at quality improvement, to ensure a balanced approach. This will allow maximal gains from both summative and formative approaches to be exploited. There is much more that could be gained from the current preference for summative approaches – a key priority being greater transparency of information. Lists of accredited providers are not widely known among the public, for example, so cannot influence quality through the patient choice mechanism.

Another law relevant to health care quality is the Pharmaceuticals Act. This specifies the process of registration and quality control for pharmaceuticals and sets up the regulatory role of the State Office for Drug Control (SUKL). SUKL monitors the safety of pharmaceuticals and adverse events in this field and has regulatory power over the drug market. Nevertheless the ability of SUKL to properly conduct a long-term analysis of drug usage is somewhat hampered by the limited possibility to link its data to other sources such as clinical events and outcomes.

The shift towards health system focused quality governance still needs to be made.

From the system-governance perspective, more co-operation between the key stakeholders in the field of quality of care seems warranted. While the main regulatory functions rest with the central government, the health insurance funds are in the best position to incentivise the health care providers to promote the quality agenda and improve performance. The relatively limited participation of health insurance funds in this field creates a situation where reimbursement mechanisms are to a large extent divorced from assessing and improving the quality of care. The health insurance funds also have the possibility (although limited) to prepare special programmes for their insurees to promote prevention and healthy lifestyle.

Co-operation could also be strengthened between regional governments and the health insurance funds. The large share of inpatient facilities owned by the regions as well as their responsibility for accessibility of care in their geographical areas should make them into indispensable partners for health insurance funds, particularly with respect to optimising patient pathways.

Last but not least the co-operation between the central government and the regions should be deepened, even though this might be at times complicated by differences in broader political allegiance. At national level, the main actor involved in quality policies is still the Ministry of Health, which drafts most of the legislation connected with quality of care. In addition, by-laws and Ministerial Bulletins set up concrete requirements, measures and clincial guidelines, often with support of academic medical

societies. More co-operation could be helpful not only while setting the guidelines or quality monitoring, but also in the field of data infrastructure, where the Czech Republic trails behind the more advanced countries (e.g. the Nordic countries).

In short, to make the shift from a governance model focused on cost control and planning of services towards a governance model focused on quality and health services performance, it would help if the main three stakeholders involved in quality governance in the Czech Republic shared a common vision on how to measure and manage quality of care, as well as a clear division of roles and responsibilities. It would be helpful to make a distinction between policies and mechanisms that are aiming at quality assurance (making sure minimum standards on safety and quality are met) and quality improvement (make sure measurement and incentives are in place to continuously support health care providers to improve performance). In line with how quality governance has been set up in other OECD countries it seems that the Ministry of Health fulfils functions with respect to assuring quality of care in the whole country whilst regions and health insurers focus on continuous quality improvement of the services within their scope.

Few mechanisms are in place to monitor and assure a smooth patient pathway for those with complex needs

Although there are recommended patient pathways for various chronic diseases such as diabetes (see Chapter 4), an unrestricted choice of providers makes it difficult to assure the adherence to these pathways. The free choice of the provider is a basic tenet of Czech health care and is popular among patients. The real impact of newly developed patient pathway guidelines will therefore to a large extent depend on the ability of stakeholders to influence the patient's choices and strengthen the role of primary care.

The ability of the Czech system to co-ordinate complex pathways of care may be hampered by the unclear role of the general practitioner (GPs). There is a general consensus about the GP's role as a co-ordinator of care, yet in practice GPs remain without strong incentives to co-ordinate care. Vertical co-operation between primary care and secondary care is not supported by the reimbursement mechanisms. Predominantly capitation-based payments in primary care do not incentivise GPs to deliver proactive care and fee-for-service arrangements in the secondary care sector may incentivise outpatient specialists to treat high volumes of unique patients on an *ad-hoc* basis. Furthermore, vertical integration of care is presently not supported by eHealth initiatives and subsequently it is quite difficult to share information between various providers of care along the pathway of the patient.

Although patients and some providers may see changes in the present system as an encroachment on their rights, it is important to raise awareness of the fact that the establishing of patient pathways is not only a matter of assuring financial balance and availability of services but also requires initiatives to assure continuity and comprehensiveness of care for an ageing population with chronic diseases and multimorbidities. In embarking on this route, the Czech Republic could take note of similar attempts of re-designing the organisation of primary care in other OECD member states. Norway, Denmark and Sweden, for example, are all engaged in decisively pivoting their health care systems strongly toward primary care through a variety of policy reforms and initiatives (OECD, 2013b, 2013c, 2014).

The present limited emphasis on monitoring and feedback mechanisms (in this case the connection between the patient pathways and reimbursement mechanisms) seems to be a relatively common feature of several quality initiatives in the Czech system. Although several positive steps have been made, further steps are needed to make the shift towards a governance model based on health system performance and the recognition that some health system re-design actions are needed to strengthen the primary care system to assure continuity and comprehensiveness of health services delivery.

The position of the health insurance funds puts them at the forefront in initiating changes towards quality governance and performance improvement

So far the Czech Republic does not fully use the potential of competition between the health insurance funds to influence patient choice and to promote the quality of care. The health insurance funds in the current legislative framework are unable to compete on scope or depth of coverage apart from some limited bonuses for insurees with regard to preventative care (e.g. reimbursement of voluntary vaccinations). It is therefore for them very hard to compete against each other in a meaningful patient-oriented way. The Czech system consequently retains most of the disadvantages of multiple-payer systems such as institutional fragmentation and difficulties in planning, while not harnessing the advantages of such systems – mainly the possibility of promoting quality and cost-effectiveness by market (or quasi-market) competition through transparency on performance.

There is a potential to foster the quality of care by promoting a stronger performance focus by health insurance funds. While it may controversial to assess the quality of care by quantitative indicators for a specific provider due to possible biases (such as more specialised or more "renowned" providers having worse outcomes because of selection bias of more severe

cases), the health insurance fund is responsible for contracting the whole spectrum of care for the insuree. Information about the outcomes of care at the health insurance funds' level could therefore provide patients with the information necessary to improve their ability to contract the best providers and assure the delivery of appropriate care. Since the health insurance funds already monitor providers' activity in order to assess the justifiability of their reimbursement claims, they should be in the best position to conduct analysis of providers with respect to quality and adjust their contracting and reimbursing policies accordingly. Consequently, the health insurance funds might consider promoting more pay for performance (P4P) both with respect to the quality of care and the cost-effectiveness.

1.4. Assuring the quality of inputs to the Czech health care system

The Czech Republic has several quality assurance mechanisms in place, most of them oriented towards appropriate volumes of resources. However, the main challenge is to shift from mere monitoring of number of physicians or medical devices (i.e. system inputs) to the evaluation and assurance of the quality of processes of care and clinical outcomes.

Professional certification and CME/CPD of doctors and nurses

Professional certification is a mandatory process for every physician who wishes to practice independently in the Czech Republic. The certification process is regulated by ministerial decrees and Act No. 95/2004 in accordance with EU Directive No. 36/2005/ES. Post-graduate training of physicians (in some specialties) is subsidised by the Ministry of Health through the "residential places" programme, which started in 2009. This aims to support professional training and education, particularly in fields where a lack of trained specialist physicians is perceived. A subsidy is allocated for named specialties in named regions, to enable training and service provision in local hospitals. Some 200-300 training places are supported by the programme each year. The number of residential places and their geographical settings can therefore act as a planning tool of the ministry for workforce allocation across the system.

During training, the physician must fulfil stringent criteria in terms of time served and number and scope of procedures performed to be eligible for certification. Quality assurance of the specialty training programs mainly in the hands of the Ministry of Health and the medical faculties whilst quality assurance of basic continuous professional development falls under the aegis of the Medical Chamber. Co-ordination between these different bodies to assure continuity and coherence in the various steps in the training process and professional career of physicians can be strengthened. The

registers of health care professionals who hold a certain degree, specialty, subspecialty or area of expertise, could be also made more transparent. After the obtaining the certificate in one of the 41 areas of expertise the physician has the opportunity to further deepen their professional competence by participation in one of the 47 advanced certified programmes. Most of these advanced specialisations go beyond the framework set up in the EU Directive.

Although important quality assurance mechanisms for professionals are in place, there is room for strengthening of CME and recertification. Currently, CME is mostly the responsibility of professional chambers. This may be beneficial because chambers have the most valid information about the needs of various groups of physicians and consequently develop appropriate forms of CME, but the lack of independent oversight may risk variable quality in terms of the material offered as well as the risk of the CME process becoming a formal procedure.

Safety of pharmaceuticals and devices

Apart from clearly defined exceptions, only registered pharmaceuticals may be used in the Czech Republic. Registration must be obtained either from the Státní ústav pro kontrolu léčiv (State Office for Drug Control, SUKL) or according to the EU law. This is also the case for herbal medicines and high potency vitamins and minerals, although the procedure for obtaining the registration is less demanding. In exceptional circumstances the marketing authorisation for a product may be withdrawn. A detailed system of registration and monitoring adverse reactions is in place at the SUKL. The SUKL can order the applicant to conduct more studies or establish stricter rules for pharmacovigilance and adverse drug events than is generally required by law. SUKL can also require the provision of additional information if the drug is registered according to EU procedures and the information provided is not deemed sufficient. The execution of clinical trials in the Czech Republic is guided by a comprehensive set of rules detailed by the Pharmaceuticals Act. Pharmacovigilance is conducted primarily by SUKL, but each holder of a registration must establish his own pharmacovigilance system to be able to co-operate with the SUKL and to react to possible risk.

Czech regulation on medical devices is guided primarily through the Medical Devices Act and the main responsibilities lie with the ministry and SUKL, which can prohibit or restrict the use of a medical device which might adversely impact the health of the user or other persons. The ministry also maintains a registry of medical devices. SUKL monitors medical devices applied by the care providers, monitors adverse events in connection with medical devices and co-ordinates clinical trials.

Some shortcomings in quality assurance of medical devices are apparent. For instance the registry is currently established on the basis of the Freedom of Access to Information Act (which is a non-specific act regulating the access to official information) and not on a specific law which would take into the account the special needs in the area of medical devices, and facilitate informing the public in more depth. The current legislation also prevents synergies in the processes of registration and reimbursement, which are done by different entities without many linkages. The deficiencies in the current legislation for these areas were recognised and a proposal for reform was unveiled in 2013. Apart from providing a stronger legal framework for the registry, the proposal would strengthen the rules for classification and tighten the regulation of the advertisement of medical devices. Following the dissolution of the Chamber of Deputies in 2013 the fate of this proposal remains to be seen. Czech legislation will also have to reflect the ongoing process of revision of EU medical devices' directives.

Although the proposed reforms described above are a step in the right direction, the Czech Republic could do more regarding the regulation of pharmaceuticals and devices. The quality of adverse events monitoring both in the case of pharmaceuticals and medical devices is to a large extent dependent on the quality of the data sources and a "quality culture" among health care personnel which motivates them to report. More data linkages and raising awareness among health professionals about the usefulness of monitoring on central level could therefore improve the safety in this area (see Chapter 2).

Quality assurance of health care facilities

The Czech Republic launched an action plan for quality and safety of health care based on the EU Council Recommendation on patient safety in 2010. The quality assurance of health care facilities in the Czech Republic was further strengthened in 2011 by the new Health Care Services Act. The implementation of a voluntary accreditation process for inpatient providers can be seen as a first step towards a more patient-oriented approach in quality and a move away from mere monitoring of the volumes of resources and care. The new mandatory requirement for an internal quality control system for all providers could also bring more accountability to the system (see Box 1.2).

Box 1.2. The minimum requirements for implementation of an internal quality assessment system

The existence of minimum requirements is stipulated by the Health Care Services Act. The exact form of these requirements is further specified in a ministerial bulletin and is mandatory for all providers of care. For the provider of inpatient care, the minimum required standards include:

- departmental safety goals, specifically:
  - safe identification of patients
  - safety in use of high risk medicinal products
  - prevention of confusion of patient
  - prevention of falls
  - introduction of the best practices for hand hygiene in health care
  - safe communication
  - safe transfer of patients.
- management of emergency conditions
- respect for the rights of patients and persons close to patients
- monitoring and evaluation of adverse events
- monitoring patient satisfaction
- compliance with regulations on staffing numbers
- monitoring and publication of waiting times.

For the providers of outpatient care the minimum requirements consist of:

- safety in the use of medicinal products with a higher degree of risk
- implementation of best practices for hand hygiene in health care
- solving of emergency conditions

The providers of emergency medical services must meet standards for:

- safety in use of high risk medicinal products
- implementation of best practices for hand hygiene in health care
- compliance with regulations on staffing numbers
- technical control of equipment for deal with emergency conditions.

Nevertheless, on a systemic level the requirements have a limited scope, with key components such as the national adverse events registry only functioning on a voluntary basis. While the relatively comprehensive set of minimum requirements may look imposing, given the lack of effective supervision in practice, it may result only in an increase of administrative burden without any added value for the patients. The Czech Republic should focus more on monitoring. Broadening the current requirements may be valuable in the future, but before this is put into practice the current system will need to prove its functionality and ability to result in real improvements in care.

A useful first step would be the acquisition of better knowledge about current practices across the Czech Republic. The ministry does not have much information about the quality of the internal quality control systems in most facilities. For instance, the percentage of hospitals which reported having a person responsible for managing the continuous improvement of quality of care and patient safety (94.7%) may seem high, but the data was reported by only 19 hospitals. It is very encouraging that the results of the 19 Czech hospitals participating in the EU funded DuQue project are relatively good. Given that there were 188 hospitals in the Czech Republic in 2012, there is a need to obtain more detailed information on quality management and performance for the other 169 hospitals. Accreditation, positioned on formative grounds contrary to the restricted summative focus described above in the paragraph on quality governance, might support this broadening of quality improvement approaches to all Czech hospitals.

Accreditation is not yet in place in the outpatient care sector. There have been some attempts initiated by the professional and provider groups, but so far none have resulted in a country-wide accreditation process. Given the fact that outpatient curative care represents 26% of all health care expenditures, it is not advisable to limit the accreditation process to inpatient hospital care only. These suggestions to strengthen and broaden accreditation to all hospitals and to outpatient services are in line with international developments. A growing number of countries have embedded accreditation in their health care systems and the trends are to broaden it from the hospital sector to all health care services (including primary care, outpatient care and long-term care), to link accreditation with performance information based on quality indicators, to balance the summative and formative functions of accreditation, and to assure that accreditation is "mandatory" either through legal requirements or through the fact that insurers only want to have contracts with accredited services.

1.5. Patient safety policies

The Czech Republic does not have a formal national patient safety strategy although departmental safety goals based on the WHO World Alliance for Patient Safety do exist. The recent law stipulates various safety requirements (Box 1.2). As discussed before this is mainly implemented through accreditation mechanisms that vary in the extent to which they really touch upon quality improvements on departmental level by addressing safety culture and the implementation of safety policies such as those promoted by WHO. Furthermore, the present data infrastructure contains little information on patient safety and adverse event reporting is voluntary.

Compared with other OECD member states, there is room in the Czech Republic for more enhanced patient safety initiatives to build on the legal requirements already put in place. One step could be to perform a national (audit) study to assess the prevalence of adverse events in Czech hospitals. Similar studies have over the past 15 years been conducted in many OECD countries and the methodology has to a large extent been standardised. Execution of such a base-line study would help the Czech Republic to establish the magnitude of the problem. Another route that could be explored is to seen how the present hygiene inspections performed by inspectors from the Ministry of Health could be broadened to include safety inspections. This would also be in line with how classical public health inspectorates in OECD countries have been evolving in the 21th century into inspectorates on broader areas than infection risks addressing wider patient safety risks.

Medical malpractice in the Czech Republic can be addressed by civil as well criminal court proceedings and by the Chamber of Physicians. The Chamber can under certain conditions exclude its members and the membership is mandatory for all physicians who wish to provide care. However the connection between the complaint procedure administered by regional governments and the process of exclusion of the physician is only indirect.

1.6. Health system standards and guidelines

With respect to the setting of standards and the development of guidelines all OECD countries are facing the same challenge: how to move away from the formulation of disease-specific, evidence-based clinical guidelines towards pathway-oriented, care-delivery standards for patients with multiple chronic conditions and varying care needs.

The main initiatives around standards and guidelines in the Czech health care system have traditionally been clinical guidelines spearheaded by the medical profession – mainly Purkyně's Association, the country's main medical research umbrella association. The Czech Medical Association of J.E. Purkyně (Czech Medical Association) comprises 119 scientific societies within health care and affiliated fields - or legal entities. The total membership of these societies is around 34 000 predominantly medically qualified persons (as of January 2014). The general aim is to promote the interests of the member societies. Aside from other undertakings such as support of research and development, the association is engaged in improving clinical quality in the Czech health care system by initiating and developing clinical guidelines. The vast majority of guidelines promoted by the ministry were developed by Czech Medical Association or at least in collaboration with Czech Medical Association or by the National Reference Centre (NRC) as a part of specific project "Research of methodology of standardisation of care". Clinical guidelines have until now predominantly been developed at a non-governmental level by the different professional societies and subsequently adopted by the national authorities. However the ministry is now planning to become more involved through the EU funded "Implementation of Clinical Practice Guidelines in the care covered by public health insurance" project which has started in late 2013. Most Czech guidelines are still disease and specialty-based. The shift towards greater standardisation of the organisation of service delivery and more guidelines addressing multi-morbidity has not yet occurred in the Czech Republic.

1.7. Managing health system improvement

The shift of focus from a governance model based on resource planning towards a governance model that tries to steer population health and quality of care for individual patients alongside cost containment, is at a relatively early stage in the Czech Republic.

So far the Czech Republic has not adopted a system-wide approach that would link together patient safety goals, the agenda of quality of care and general population health targets. The lack of this systemic approach is illustrated in the area of monitoring of performance of health care services and weak linkages between policy makers, the Czech Medical Association and care providers when it comes to common attempts to improve the quality of care. A shift in focus from resource planning towards quality governance asks for realignment of the responsibilities and roles of the various stakeholders and a strong information infrastructure that can help to manage performance. In addition, system-redesign might be considered to strengthen primary care and assure the continuity and comprehensiveness of care delivery for patients.

The first step that could be taken in this direction would be to formulate a national quality strategy and set more comprehensive nation-wide quality targets. The establishment of quality targets would help Czech stakeholders not only clearly define what can be seen as a successful policy and in which segments the initiatives did not fulfil the expectations, but also enrich a public discourse regarding the cost-effectiveness of the system as a whole. By developing a national quality policy, with performance targets detailed in a regular national report on safety and quality in the Czech heath care system, the shift towards health system improvement could be further enforced.

1.8. Strengthening the role and perspective of the patient

In terms of responsiveness to the needs of the patients, the health care system in the Czech Republic presents a mixed picture. The Czech Republic scores very highly in three out of four main internationally comparable measures of patient experience in ambulatory care. The percentage of patients who reported that the physician spent enough time with them in consultation is the highest of all the OECD countries. The Czech health system also ranks very highly in the reported ability of physicians to provide easy-to understand explanations and giving the patients opportunity to ask questions or raise concerns. It is not clear whether these results stem from a move towards a patient-oriented approach or whether they are also partially caused by the relative abundance of physicians within the health care system. On the other hand, less Czech patients report that they have been involved in decision making about the care and treatment than in other OECD countries (OECD, 2013a).

A national level systematic evaluation of patient satisfaction in inpatient settings was discontinued, although preparation of a new system is currently underway. However, participation in this new initiative as well as the previous one was voluntary and did not cover the whole inpatient care sector. Such voluntary initiatives are certainly a way forward and may represent a useful first step, but they can result in certain complacency as those who choose to participate are usually best achievers and results can therefore be favourably biased. There appears to be little supervision of the patient experiences internal monitoring system, although its maintenance is mandatory by law for every provider. Its functionality thus heavily depends on the attitude of the management of health facilities. On one hand this may result in new innovative approaches in case of interested management, but in times of fiscal constraints when the providers often struggle to balance budgets, there is a real danger of giving low priority to the measurement of patient experiences.

The system for assessing formal complaints made by patients is two-tiered. A complaint filed against a health professional or provider is first assessed by the provider which has administered the care. If the patient is not satisfied with the handling of the complaint the regional government constitutes the second-tier of the complaint procedure. The regional government may instruct an independent body to assess the medical aspect of complaint handling if necessary. These arrangements demonstrate that the complaint procedure was developed primarily for the larger providers, such as hospitals. It does not seem entirely appropriate for the provider of outpatient specialised care or primary care, as the predominant mode of these services is solo practice and therefore the physicians themselves are responsible for evaluating any complaints filed against them. Although the second tier might provide the patient with a satisfactory inquiry, the Czech authorities might consider strengthening the complaint procedure for the outpatient sector by setting up a different first-tier mechanism. Models used in other countries might serve as an example to design an independent complaint handling procedure for solo or small practices.

If it is deemed justified, the complaint may result in imposing remedial measures on the provider. The regional government (or provider) may also suggest further investigation by the professional chamber or other regulatory bodies. The complaint procedure and its result cannot by law prevent the patient from seeking justice by other means, for instance by standard civil lawsuit or by filling criminal charges.

Czech patient organisations

Czech patient organisations are presently not realising their full potential through patient involvement at the health services level, or the decision making level. This is partially caused by their fragmentation. There are at present several competing umbrella patient organisations in the country and in case of several of them it is not entirely transparent how many patients they represent. The patient organisations also seem to be plagued by vague or non-existent rules on financing and their connections to political parties. The lack of unifying rules makes the other stakeholders view patient organisations as a lobbyist not only on behalf of the patients, but often also on behalf of some other interested party.

The Czech Republic should consider setting up more rigorous rules for financing patient organisations and transparency of their ties with industry or political or interest groups. The government should publish a set of rules designed as a prerequisite for accepting a patient organisation as a representative organisation. The issue of financing patient organisations is complex. On the one hand, the patients themselves often do not have sufficient funds to contribute and self-financing is therefore not an option.

On the other hand, relying solely on industry financing will always risk accusations of bias or lobbying. In some OECD countries where the patient organisations play an important role (e.g. Netherlands) the government stepped in and partially subsidised these organisations, recognising the usefulness of their input when formulating policy. However in case of government subsidy programmes, it is crucial to ensure the continuing independence of the organisation in order to prevent possible pro-government bias. Another option, existing in several countries, is to subsume patient organisations into the more evolved and financially stable "consumer rights" organisations which would represent patients as a customers of health care system.

1.9. Conclusion

Although many components of quality strategies are in place in the Czech Republic there remains room to embed them in a more consistent quality governance structure. The Czech Health Services Act provides a legal framework for many of the quality oriented features, but the monitoring of compliance is relatively poor and the system-wide monitoring of outcomes at the individual or provider level almost non-existent.

The present pattern, where some features are made mandatory by law yet remain relatively unenforced, is illustrated by a number of examples (for instance, the system of internal auditing of quality and the system of monitoring of patient safety). This approach presents risks for the future of quality of care in the Czech Republic. Such quality policies only result in formal compliance and do not result in real quality improvement processes at patient care level. Furthermore, they can result in the creation of negative attitudes among the providers towards the quality-oriented measures. The negative attitudes of health care personnel could prevent the implementation of meaningful and well-monitored quality initiatives in the future.

It is important to insure that quality assurance is not mistakenly equated with merely ensuring sufficient resources (personal and technical). Instead, renewed attention must be paid to the processes of care and to the monitoring of the actual outcomes. Although appropriate resources are a necessary condition of quality and accessibility of the health care, several OECD countries managed to widen their understanding of this topic and evaluate quality more broadly as for example illustrated in the country reports on Denmark, Israel and Sweden.

Note

1. The Visegrad countries are the Czech Republic, Slovak Republic, Poland and Hungary.

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Chapter 2

Health data infrastructure in the Czech Republic

This chapter examines the extent to which data infrastructure contributes to quality improvement in the Czech health care system. The quantity of data gathered thorough the health care system is substantial and there are areas in which Czech Republic excels, such as the National Cancer Registry. Overall, institutional fragmentation of data gathering, insufficient emphasis on analysis and lack of data on health outcomes hampers the ability of this information to contribute substantially to gains in efficiency and quality of care.

The Czech authorities should streamline the data gathering process and set up systems for data linkage, anonymisation and sharing, whilst focusing on in-depth data analyses as a way to drive more effective quality measurement and improvement. Addressing the balance between personal data protection and effective usage of data in a systemic way is also necessary. More active involvement from patients' organisations will also be important.

2.1. Introduction

A well-functioning data infrastructure is necessary from the point of view of every stakeholder in a health system. Payers and policy makers can use data to increase quality and efficiency throughout the system; providers can benefit from comparison with their peers; patients can use comparative information on providers' quality of care to make a more informed choice of provider; and finally, for the taxpayer, good information can translate into potential savings and efficiency gains stemming from better co-ordination, evaluation of needs and allocation of resources. The savings resulting from adoption of a better data infrastructure can be considerable. For instance VistA, the electronic system of US Department of Veterans' affairs, saved over USD 3 billion in cumulative benefits net of investment costs as a result of improved efficiency of health care provision (Byrne et al., 2010).

Depending on the quality of the data infrastructure and the subsequent analyses, data can serve not only as a tool to assess volumes of care and resources within the health care sector, but also to monitor and reward quality in the provision of care. Several OECD countries (such as Finland or Sweden), which spearheaded projects based on data collection and data linkage were also able to establish rigorous quality monitoring and tackle problems with underperforming providers (OECD, 2013). The Swedish benchmarking of health outcomes in other counties, conducted by Swedish Association of Local Authorities and Regions also demonstrates the potential for various stakeholders to come together and co-operate via rigorous open comparison.

This chapter begins with an overview of data collection and continues with a description of the institutional background of data gathering in the Czech Republic. Who collects the data and how it is analysed can be as important to the added value of the data infrastructure as the overall amount of the data itself. The next part of the chapter enumerates the shortcomings within the Czech data infrastructure, particularly in connection with data linkage and usage of data. The final part of the chapter offers some recommendations based on international experience in terms of what to collect, how to collect it and how to get the most from all the information gathered.

2.2. Overview of data collection

The amount of data gathered across the Czech health care system is substantial. Most data is focused on volumes of care and resources within the system. Clinical data is gathered almost exclusively by specific registries, organised either as a tool to monitor certain diseases (such as

cancer) or some vulnerable population groups (such as newborns). The national registry of hospitalised patients can supply policy makers with comprehensive data about inpatient care including the diagnoses and, in a limited way, the treatment outcome (whether the patient died, and in case of discharge if the need for further care was envisaged).

While most of the other registries are either disease-specific (such as Czech National Cancer Registry) or oriented towards specific population segment (newborns and mothers in case of National Registry of Reproduction Health), the hospitalisation registry can supply some information about every disease in every population group, provided that inpatient treatment was needed. The focus of most registries is on clinical features, primary diagnosis and description of the treatment and less on the clinical pathway and outcomes experienced by the patient.

The table in Annex 2.A1 provides an overview of all important data collected, its custodians, legal grounds for data gathering and content of the data.

The Czech Republic faces considerable fragmentation in the institutional background of data gathering

Czech health data is gathered and processed by several entities which can be divided into four groups according to the nature of their legal mandate to collect data. The first group consists of guardians and processors of the National Health Information System (NHIS) – the Ministry of Health (which holds a special position in the system, because it also receives information directly from health insurance funds and several subsidiary organisations), the Institute of Health Information and Statistics of the Czech Republic (UZIS) and the Co-ordination Centre for Departmental Health Care Information Systems (KSRZIS). The NHIS is made up of health data in various registries and from statistical surveys.

The second group consists of the health insurance funds, which are empowered by law to collect data for the purposes of reimbursement, monitoring of volume and quality of the services rendered. There are seven health insurance funds (HIFs) in the Czech Republic, with one having a special position – the General Health Insurance Fund (VZP). Apart from being subject to different governance rules, VZP also maintains a classification system for certain areas such as medical aids or reporting of services provided, and collects data about insurees from all the other funds in order to reallocate collected health insurance. The HIFs, together with some associations of providers, set up the National Reference Centre (NRC) to serve as an umbrella organisation whenever data about provision of services from multiple HIFs needs to be aggregated.

The third group of data gathering institutions are those which have a strong legal mandate, but only in very narrow area. As a result, their data cannot be used for a broad analysis of quality of care but only for the specific purpose for which they are maintained. The most notable among these are the 14 regional governments, the State Institute for Drug Control, the Czech Chamber of Physicians, the Czech Chamber of Dentists and the Czech Chamber of Pharmacists. The regional governments collect information about the network of providers in their regions. While the regional governments are legally responsible for the availability of care in their geographical areas, they are unable to assess quality of care, because they do not have access to any disaggregated data about clinical outcomes. The professional chambers collect basic information about their members (such as their specialty and activity). The State Institute for Drug Control gathers data about pharmaceuticals, prescriptions and adverse reactions to pharmaceuticals as well as maintaining a database of pharmacies, medicinal products and clinical trials. It also collects information about the volume of pharmaceuticals distributed to pharmacies.

The fourth group of data gathering stakeholders consists of agents having a limited or a non-existent legal mandate to collect data. Some of the academic medical societies or research institutions, such as the Institute for Biostatistics and Analyses (IBA), support voluntary registries such as the diabetes or cancer screening registries. Such registries cannot store data with information which would enable the identification of individual patients or, alternatively, would require individual consent in every case in which such data might be used by a third party.

Not taking into the consideration the fourth group, and taking the regional governments as a single entity (because of their geographically determined non-overlapping purviews), there are still no less than 15 stakeholders collecting health data from providers and/or health professionals within the Czech health systems.

The Ministry of Health, as a key stakeholder, has access to various data sources

The ministry is responsible for the organisation of health care in Czech Republic and as such can request certain data from health insurance funds. The funds supply financial information, which gives the ministry an overview of their financial balance, as well as aggregated data about reimbursement of various segments of care. This data is usually supplied on quarterly basis, so that the ministry has an early warning if some segment of care or an insurance fund starts to look underfunded. The ministry does not, however, have routine access to individual data from health insurance funds

at insuree-level or provider-level. The extent to which the ministry can assess reimbursement or contractual policies of health insurance funds is therefore limited. This limitation may prove problematic especially while considering the fact that the ministry has final responsibility for setting up the reimbursement rules on a systemic level, but does not have information on how widely are its rules subsequently applied.

The ministry shares responsibility for drug policies and supplies with the State Office for Drug Control (SUKL) which provides the ministry with information about the numbers of drugs issued in pharmacies. SUKL data is more complete than the prescription data of health insurance funds, because pharmacies report all issued drugs to SUKL, not only reimbursed drugs. Another arms-length Ministerial organisation, the Co-ordination Centre for Transplantations, administers transplantation registries. These contain information about individuals waiting for transplantation, donors and information about transplantations performed. The ministry also directly manages most of the country's biggest hospitals, inpatient psychiatric clinics and several centres of highly specialised care. The information supplied by these providers, however, is mostly financial and does not consist of clinical data. Nevertheless, even this kind of information provides the ministry with the opportunity of having at least some of the information about the influence of reimbursement mechanisms on the financial balance of inpatient providers in advance.

Finally, the ministry is empowered by law to manage the National Health Care Information System which contains data about the health status of the population, health care resources, the utilisation and provision of care. The purpose of this data gathering is, apart from publication of statistical information the assessment of scope and quality of services, provision of background information to support policy formulation and managerial decisions. All providers of health care, health insurance funds and, for some specific purposes, other stakeholders (such as providers of social care for drug addicts), are obligated by law to report data in digitalised form to the NHIS. Currently, the ministry mainly delegates responsibilities connected with the NHIS to its subsidiary organisations and receives only statistical excerpts or "on demand" *ad hoc* analyses. Apart from health resources data, the NHIS also consists of some utilisation data and, to some extent, data about outcomes, albeit mainly in aggregated form.

The National Health Care Information System provides policy makers and the public with basic information…

Maintenance of the NHIS can be delegated by law to UZIS, KSRZIS or VZP. While the VZP plays an important role in setting up classifications,

coding and data standards for all health insurance funds, its role in the NHIS is otherwise limited. In practice, all data is gathered by UZIS with KSRZIS serving as a technical and support organisation for the maintenance of some registries and provision of data storage.

UZIS gathers data through annual surveys of providers and also manages most of the health registries (see the table in Annex 2.A1 for the overview of the registries). It also manages certain sampling surveys. While the annual surveys do not contain individual data, the health registries do and could therefore be linked to other sources. Some data linkage is conducted – most notably the linkage between the national oncological (cancer) register (NOR) and mortality data, but most of the data in registries is only seldom linked to the other sources.

Some of the health registries are not maintained directly by UZIS, but by another organisation subordinated to the ministry – KSRZIS. KSRZIS also manages some registries not directly connected with the health care system but more with various aspects of public health, such as registries of cosmetic instruments, chemical substances, monitoring of drinking water etc.

Some of the Czech health care registries contain high-quality data on par with those of the most advanced OECD countries. For instance the completeness and scope of the data gathered by the national cancer register can serve as an example of high-quality data being gathered in a relatively low cost environment (see Box 2.1 for further details on the Czech National Oncological Register).

…but the output is mainly in the form of descriptive statistics and appears to be little used for quality monitoring and improvement purposes

The main output of the NHIS is represented by statistical publications published by UZIS. Each year UZIS issues descriptive reviews concerning the number of health professionals by category, age, specialty and region; number of providers and their basic characteristics; number of patients in various types of care; and some basic epidemiology. The UZIS websites have a rudimentary data presentation system allowing visualisation of some data gathered in the annual surveys, collected by registries or supplied by the Czech Statistical Office and Czech Social Security Administration. UZIS maintains basic statistics about the number of downloads for various publications. So far the demand for these descriptive publications appears to be relatively low, ranging from around 4 000 downloads for its main publication (the Health Care Yearbook), to less than 100 for a number of publications about utilisation of care in various specialties or disease specific information. UZIS also supplies data to international organisations

such as the OECD, WHO and Eurostat. More in-depth analyses based on data encompassed in NHIS are usually conducted by non-governmental entities such as IBA.

The data collected in health registries is used to a very limited extent as feedback for assessment of various guidelines. To comply with certain guidelines, such as those for screenings, it is necessary to submit some data, but the process of setting new guidelines or updating them does not seem to be based on regular review of any data relating to actual processes or outcomes of care.

Box 2.1. The Czech National Oncological Register

The Czech Republic has a long tradition of data gathering in the area of cancer care. The basic data collection register was established in 1951. The Czech National Oncological Register (NOR) was set up in 1976. NOR is thus one of the oldest continually functioning nationwide cancer registries in the world. The long tradition, coupled with compulsory reporting and the support of medical societies, ensures data quality and completeness.

NOR enables researchers and policy makers to infer on not only incidence and staging at the time of diagnosis, but also prevalence due to the fact that the provider servicing the patient after the end of primary treatment also has to report the follow-up data. NOR contains detailed data about cytology, histology and topography of the tumour as well as detailed information about its treatment (including all surgery, radiotherapy and chemotherapy). The information about how the tumour was diagnosed together with the index variable describing whether the illness is to be considered as "diagnosed late" also enables some analysis with regard to effective prevention.

Although the ministry is ultimately responsible for the management of the national oncological register, NOR, just like other NHIS registries, has an advisory body which handles important methodological issues and also grants approval for use of the anonymised data by third parties. NOR's advisory council consists of researchers and health professionals from the Czech Society for Oncology, the ministry and UZIS officials. The presence of all the relevant stakeholders ensures the registry is maintained in a way which helps to conduct various data analyses and make the most of the data.

The data gathering is staged. In the first phase the provider sends data to the regional NOR department where trained staff spot likely errors in the data. The regional department then sends the data to UZIS, which oversees the central monitoring of data quality. This unique structure ensures the high quality of the data.

Health insurance funds have the best overview of health care activity

The HIFs gather large amounts of data to reimburse providers, controlling activity and reimbursing insurees if they reach a legal yearly cap for co-payments. HIFs are the only stakeholders with a complete overview

of every interaction a patient has with the health care system covered by the public health insurance. For each individual insuree, they can monitor the pharmaceuticals and medical aids issued and covered, visits to providers and services provided to the patients in outpatient as well as inpatient settings (apart from few types of check-ups which are paid via GP capitation payment). They also gather a significant amount of data about providers to check compliance with the minimum personnel and technical requirements.

HIFs also have the right to exercise direct "on the spot" control of the services through a system of physician-led peer review to check whether the services billed were in fact provided and whether they corresponded with the health status of the insuree. These control mechanisms often result in a substantial change in the reimbursement. Although the legal mandate of HIFs to gather data is in no way stronger than the mandate given to keepers of the NHIS, there is a persistent view among the stakeholders that HIFs have the most reliable data. While the ministry can in theory fine the provider for not supplying the data to the NHIS, in practice this option is not used. On the other hand HIFs actively penalise providers who supply incorrect information by not reimbursing (or reimbursing less) care reported via incorrect or misleading billing claims.

The key question remains – to what extent are the HIFs interested in using their data capabilities for improving the quality of care. There are some initiatives towards improvement, especially in primary care spearheaded by smaller funds. Nevertheless, considering the overall amount of data at the disposal of health insurance funds, utilisation of the data with the aim of identifying and promoting excellence in provision of care is still low.

Voluntary data gathering is oriented on aggregation of HIFs data and disease-specific registries

There are several stakeholders who are engaged primarily in the analysis of data, to which data is provided on a voluntary basis. Most notable of them is the National Reference Centre (NRC), which primarily collects data from hospitals and HIFs in order to maintain the Czech DRG system, and IBA, which analyses data from the cancer registry, screening registries and run several disease-specific registries.

The NRC is an organisation funded and managed by HIFs and associations of providers. It not only collects the data necessary to update the Czech DRG system from several hospitals (participation on the part of hospitals is voluntary), but is generally entrusted with activities for which the co-operation of HIFs in terms of data sharing is necessary. It therefore also operates as a "clearing centre" for vaccination (to minimise the costs

via shared supplies etc.). The main output of NRC consists of an algorithm which allocates hospital patients to particular DRG groups, on the basis of services provided and some patient characteristics.

The IBA is a research organisation affiliated with Masaryk' University of Brno. As a research organisation, IBA cannot take direct responsibility for data gathering and therefore can only use data sent voluntarily by other stakeholders. IBA focuses primarily on co-operation with Medical societies and analyses information from various voluntary disease-specific registries, with data analysis of NOR as its flagship project. The output of IBA consists not only of descriptive statistics, but also a significant body of scientific literature. This is largely derived from NOR, but also other registries such as that for rheumatic diseases. The number of registries which IBA maintains is supported by industry and oriented very narrowly on patients treated with specific pharmaceuticals.

Electronic health records are still not universally in use and their future development seems uncertain

Electronic health records (EHRs) in the Czech Republic are mandated by law as an option for how to store information about a patient. While EHR usage is relatively widespread in inpatient facilities (72% of individual practices use some kind of electronic health documentation), this is largely limited to a digitally stored profile of an insuree's basic information. The greatest potential use of EHRs – as an active clinical record transferable between various providers and health insurance funds, accessible online – is under-developed.

This is partially due to the fact that transferability of the EHR was mostly in the purview of health insurance funds, which adopted different approaches to the problem. Most HIFs have launched projects for data sharing, including electronic health cards to facilitate communication between a fund and insurees, storage of health records and even transferability. However the biggest programme, launched by VZP (called IZIP), ceased to be supported due to perceived low usage, questionable results of cost-benefit analysis as well as an unfavourable media reception.

Some of the smaller funds (e.g. Skoda Health Insurance Fund) have their own projects which, for instance, allow online control of prescriptions and potential drug interactions, but these projects cover only small portion of the population. The central government tried to devise a new medium-term strategy for this area specifically aiming at infrastructure for sharing of the clinical records, but so far its projects have failed to secure sufficient funding and their future is unclear.

Linkage between health data and other administrative databases

There are several links between health data and other administrative databases. Both UZIS and the HIFs require access to certain information in order to be able to carry out their duties. In order to be able to process insurance claims correctly, HIFs are provided with access to central governmental administrative registries and are entrusted with information about the name, address, date and place of birth, date and place of death and identity numbers of their insurees. UZIS shares joint responsibility with Czech Statistical Office (CSU) for publishing mortality statistics. The NHIS can request data about Czech citizens from the national population registry and about foreign nationals from data systems of the Ministry of the Interior.

The Czech Republic has a great advantage for linking data in that every citizen has an identity number (*rodné číslo*) which does not change (in the event that it does, the HIFs are updated). All data, which is not anonymised, contains either this number or the insuree number, which can be easily linked by HIFs to their *rodné číslo*. From the point of data structure the linkage is relatively easy to make – the only exception being persons (such as foreign nationals) who for whatever reason do not have an identity number.

The most important information connected to the health status of population, but not considered as "health data" in the Czech Republic, is sickness absences and social disability allowances. Information about sickness absences is gathered and maintained by the Czech Social Security Administration (CSSZ), directly subordinated to the Ministry for Employment and Social Affairs. Since sickness insurance is also collected and subsequently administered by CSSZ, the need for connecting this data to the HIFs databases was not yet acutely felt. However, in order to be granted sickness leave it is necessary to present a medical certificate from a health care provider, and some stakeholders perceive the unusually high number of doctors' consultation per year per capita (the Czech Republic 11.1, OECD average 7.0) as possibly related to this fact. This may place additional unnecessary burden on the system of primary care in particular. The non-existence of regular linkage also prevents any possible data analysis of treatments from the point of view of ability to work and minimisation of time spent on sickness leave.

Data about quality of care held on disease specific registries (particularly NOR) and data collected by HIFs that could potentially be useful for quality assessment are not frequently linked to other databases. Generally, data linkage is performed for administration purposes. Analysis and assessment of the quality of care are not seen as sufficient reasons to overcome the legal and administrative obstacles to data linkage.

2.3. Assessment of the data infrastructure

While considering the appropriateness of the data infrastructure it is important to note to what extent it facilitates the exchange of relevant information between the various stakeholders, to help cut costs and to improve quality. Furthermore these objectives should be reached at a reasonable cost with sufficient protection of privacy. This section describes the main challenges of the Czech data infrastructure with an emphasis on the added value of data.

Effective use of data can drive quality improvements and more efficient health care

The collection and analysis of data is a necessary pre-requisite for monitoring compliance with guidelines and quality of care more generally. It has been shown that the monitoring of performance indicators based on data collection results in an improvement in the quality of care (Asch et al., 2004). The Czech Republic still has room for improvement in this area. While there are a considerable number of guidelines in place, the current capacity to monitor compliance and update guidelines on the basis of outcomes of care is still insufficient. For a proper evaluation of the impact of a procedure or practice it is not enough to look only at isolated care episodes; medium-term outcomes (such as need for rehospitalisation, rehabilitation, disability allowance, death rates) should also be assessed. Some OECD countries have spearheaded initiatives to link guidelines and outcome data. The Swedish National Board of Health and Welfare introduced a project to periodically review guidelines, where data linkage is used to assess the outcomes of care in order to enable an adjustment of these guidelines (OECD, 2013). Setting up a similar process with using Czech data might be beneficial.

Linkage should be used not only to evaluate quality, but also cost-efficiency of current practices, especially in the field of prevention. There is currently an on-going debate among the scientific community concerning how to organise prevention in a cost-effective manner (see Chapter 3). The data gathered thorough the Czech health care system could be used, for instance, for evaluation of annual check-ups. The national cancer screening programmes could also benefit from more data linkage. From a process point of view they seem to be well organised. However, it is hard to fully discern their quality without linking individual screening records to the National Cancer Register, to ascertain whether there is any difference in cancer stage at diagnosis or survival between those who attended screening and those who did not. Without linkage, it is not even possible to know how many people were screened with negative results, but were later diagnosed

with a disease that should have been detected at screening. Some work in this area has already undertaken in other OECD countries. Germany, for example, has piloted an evaluation of its breast cancer screening programme via a data-linkage project similar to that proposed above, using probabilistic modelling of outcomes (OECD, 2013).

One of the potential problems for linkage is the current legislative framework of data gathering. While anonymised data from NHIS can be used for research purposes, there is currently no established legal procedure for similar usage of data held by the health insurance funds or other stakeholders, let alone for the linkage of this data to other sources or to NHIS. Furthermore, data collected by NHIS which identifies providers cannot be published or given to the research community without the providers' consent (even in case of the largest inpatient facilities). It is thus impossible for an independent researcher to link outcomes to actual practice or a standard of care in particular facilities. The personal (patient) data protection issues also represent a powerful obstacle to analysts.

Personal data protection issues have recently thwarted some initiatives

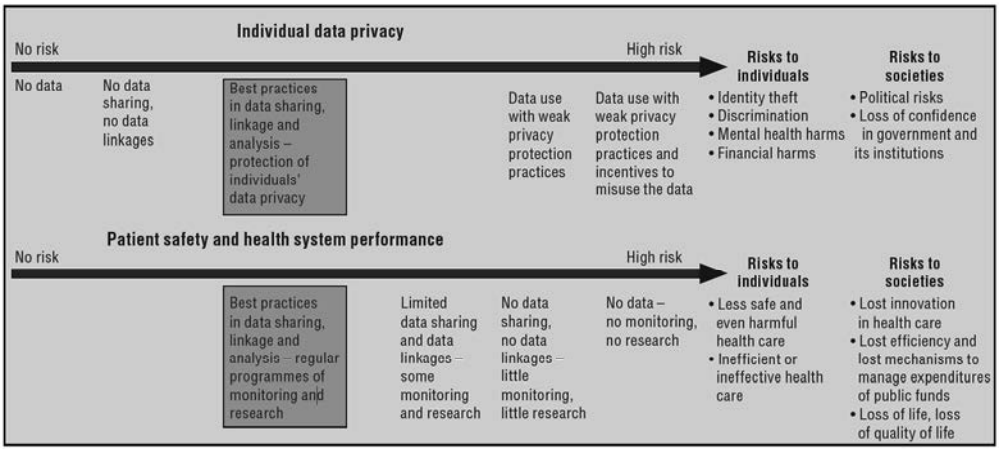
In recent years, some initiatives aiming at gathering more comprehensive data were thwarted by the decisions of Constitutional Court (in the case of the health care professionals' registry) or by the Office for Personal Data Protection (in case of SUKL's database of prescribed pharmaceuticals). In case of the health care professionals' registry, the scope of the gathered data was found to be problematic (including data on the extent of professionals' knowledge of the Czech language, for example). In case of prescribed pharmaceuticals, SUKL was banned from maintaining a database containing unique identifiers of individual patients. These rulings do not place a ban on gathering such data in the future *per se*, but they do require more specific justification for every type of collected data to be provided. In light of the relatively scarce analytical output, this requirement emphasizes the need for greater focus on usage of data and production of policy-relevant reports.

Lack of data usage can lead to less safe or efficient care. An example of how effective use and linkage of health care data improves quality of care comes from Finland's PERFECT project. Through this project, the Finnish authorities were able to optimise the care of newborns and having recognised poor infant mortality rates in one hospital they were able to take appropriate measures. The existence of a single institute (the Finnish National Institute for Health and Welfare) with information on the whole cycle of newborns' care, including outcomes, was critical to the project's success (OECD, 2013).

Personal data protection is an important issue, but at the same time it cannot serve as an excuse for not using data for the evaluation of the quality and efficiency of care. The costs of not acting, in monetary terms as well as health outcomes, are not easy to calculate, but nevertheless they exist and are likely to be considerable. For instance, the estimated number of deaths from medical errors in hospitals in United States is at least 44 000 per year with total national costs between USD 17 billion and USD 29 billion (Kohn et al., 2000).

All OECD countries have to balance legitimate concerns about data security with the advantages of allowing stakeholders to analyse such data to assess the needs, strengths and shortcomings of care. However, it is possible to achieve this balance and this can bring significant efficiency gains (see Figure 2.1). There are many examples of best practice in the field of data protection that the Czech Republic could draw inspiration from. For instance, many Canadian authorities use a very comprehensive procedure for de-identification of data using Privacy Analytics Risk Assessment Tool (OECD, 2013), which ensures the safety of sensitive personal information while still allowing data to be shared and analysed. As a first step, the Czech Republic needs to assess its legislative framework and develop a plan on how to address the various obstacles to enable secure use of data.

Figure 2.1. Balancing individual data privacy concerns and benefits to patient safety and system performance



Source: OECD (2013), S*trengthening Health Information Infrastructure for Health Care Quality Governance: Good Practices, New Opportunities and Data Privacy Protection Challenges*, OECD Publishing, Paris, http//.dx.doi.org/10.1787/9789264193505-en.

Top management often feel swamped by data but have no access to proper analysis

Since there are few tangible results beyond descriptive statistics which add value for clinicians, policy makers or members of public, stakeholders do not view data gathering as a priority. As a result, sending reliable data is not really enforced (except for the data of HIFs for the purposes of billing). The low importance given to providing data is demonstrated by the poor enforcement of the legally binding obligation for providers to send their data in digital form. The law mandating this obligation was passed in 2011, but a considerable percentage of providers still send some of their data in paper form (more than 50% of inpatient care providers and around 90% of outpatient care providers).

A connected issue is the attitude some stakeholders (particularly providers) have towards data gathering and publication. Some providers see data gathering as mere bureaucratic procedure which adds to their administrative burden. Most providers are also wary of making data public at the level of individual hospitals – even descriptive data about health resources or volumes of care. For some data, e.g. data collected by the adverse events registry, their reluctance is understandable. In cases where the quality of data is poorly enforced or depends only on voluntary activity, publication could actually provide a disincentive to report data rigorously or report at all. In other cases, reluctance might stem from unwillingness to face more competition. Nevertheless, in the long-term it is hard to justify collection and further development of data without outputs which bring value to clinicians, policy makers and the public. Cost-benefit analyses are the norm throughout the health care system and there is no reason why data collection should be an exception. A more rigorous rationale should be provided for every variable collected including the expected publicly available outputs.

There is an impression among policy makers that not enough is being done in the field of data analysis and it is often not clear to what end data is being gathered. It was reported that some health care managers feel swamped by data, but have no access to any proper analysis. This is due to the fact that purely descriptive statistics are still the predominant output. As a result, debate on health care reform lacks the context and insight which more extensive data analysis could provide. Implementation of user fees, for example, is a topic of great interest to the Czech research community, policy makers and the public. To date, however, only one academic paper using administrative health system data has been published on the topic (Hromádková and Zděnek, 2013). Cases where individual anonymised data are provided to researchers are still exceptions and not the rule. Current

practice, together with the lack of in-house analytical capabilities in the most of the data gathering agencies, results in little policy-relevant output and consequently low perceived importance of data gathering for the policy makers and general public.

Stakeholders do not seem to co-operate in the field of data infrastructure

Co-operation between various stakeholders in the field of data infrastructure is of utmost importance because of the relatively fragmented institutional background of data gathering in the Czech health system. The fragmented institutional background is partly a result of the multiple insurers' model, where every insurer gathers data about its customers, but partly the result of past developments of data infrastructure not being guided by a comprehensive long-term strategy.

The fact that every HIF gathers data about its insurees is understandable from the standpoint of a competitive environment, but to justify why data collected for purposes of central administration are administered or processed by several agencies (e.g. UZIS, KSRZIS, SUKL) is difficult. It is not immediately clear how the health system can benefit from such fragmented data collection, especially when the fragmentation makes it difficult to proceed with data linkage and hinders attempts to analyse data more thoroughly.

Co-operation between HIFs and government agencies is lacking, especially in the field of coding and classification of health care activities and outcomes. So far, the data of HIFs and UZIS is not linkable on a more detailed level than for the providers as a whole. For instance, it is not easily possible to link data for hospital departments, let alone wards. This lack of co-operation results not only in more constrained means for data analyses, but also prevents any attempt to remove the possible duplicities in data gathering among HIFs and UZIS.

The feedback to providers from data gathering agencies often only comes in the form of correction of mistakes. This attitude creates a significant asymmetry in terms of data. Health insurance funds can compare providers based on data provided by them, but providers have no validated information about how their peer group is performing. Even if the HIF decided to share some of the data this would most likely prove unfeasible because of commercial confidentiality concerns. The same concerns apply, albeit to less extent, to the relationship between the providers and the government data agencies such as UZIS, KSRZIS or SUKL.

The health data infrastructure in the Czech Republic has several key issues to focus on

Although there are large quantities of data gathered in the Czech health care system, the data infrastructure and subsequent use of the data suffers several serious shortcomings, most notably:

- personal data protection issues hindering the use of data for the purpose of monitoring quality and effectiveness of care
- a fragmented institutional background of data gathering which prevents data linkage being sufficiently used and adds an unnecessary administrative burden to the providers
- lack of incentives for key data gathering stakeholders to provide the in-depth analyses resulting in the situation where gathering health data is not seen as a priority by providers and general public
- the requirement to send data in digitalised form is not enforced so much of UZIS's time is subsequently wasted on digitalisation of the data
- considerable information asymmetries between providers, the ministry and HIFs create unnecessary differences in their view of the priorities of the system based on different sets of information
- lack of linkage and insufficient analysis prevents data from being comprehensively used to evaluate the quality of care
- lack of "quality culture" and consensus about the need for systematic monitoring of quality improvements.

2.4. Recommendations to improve the Czech data infrastructure

There are several areas in which the Czech Republic could improve the added value of data which is currently gathered. In addition, more data, especially on the outcomes of care, should be collected to make providers more accountable and improve health care quality. Since most of the proposed measures do not have significant budgetary implications, the Czech Republic can achieve improvements in monitoring of quality, helping patients to make informed choices and fostering the effectiveness of health care delivery without incurring much additional cost. The Czech authorities should consider:

- formulating a long-term strategy for development of data infrastructure
- reducing the fragmentation of the institutional background of data gathering and increasing the possibility to create data linkages by setting up standards for this process and making one organisation responsible for linkage and production of anonymised data
- making sure that all data gathering results in outputs usable either by policy makers or by the general public by emphasizing the creation of in-depth analyses as opposed to the production of mere descriptive statistics
- making more health data disaggregated at hospital-level available to health service managers and, in time, to the public
- strictly enforcing laws in the field of data collection – all data should be sent in digitalised form
- addressing issues around data privacy by more effective collaboration with other stakeholders (especially patients' organisations), and adopting the best practices from other OECD countries
- promoting the collection of more health outcome data, with a particular focus on establishing more disease-specific registries
- in the longer term, introducing nation-wide electronic health records as a means to not only improving care, but also to reducing costs.

Each of these recommendations is considered in more detail below.

The Czech Republic should adopt a comprehensive strategy for development of the data infrastructure in the health care system

The Czech Republic should formulate and adopt a long-term strategy for creation of an enhanced data infrastructure in health care. Elements such as introducing electronic health records and improving data gathering should be seen primarily as technical, non-political issues. In order to secure a long-term consensus, the strategy should be formulated with the participation of the main political parties as well as main stakeholders, especially those most affected – i.e. patients, health insurance funds and providers.

The strategy should firstly outline the purpose of data gathering and then structure the more technical parts accordingly. Only by emphasizing a results-oriented approach can the Czech authorities persuade often sceptical

stakeholders about the virtues of a well-functioning data infrastructure. The Czech Republic could learn from the experiences of several other OECD countries in this regard. In Belgium, for example, the seven health insurance organisations have entered into a partnership, backed by law, to create a permanent database of primary health care, hospital and medications data for the purposes of monitoring treatment patterns and costs for patients with chronic diseases.

Reduction of fragmentation would lead to financial savings and decrease the administrative burden for providers

Within the framework of the health care data infrastructure strategy one of the key issues to address is the institutional fragmentation of data gathering. It is understandable if the providers, who in one way or another have to report health care-related data to approximately 15 organisations, complain about the associated administrative burden, even if the scope of the data in itself is not very wide. Streamlining data collection procedures should be a primary concern of the policy makers.

By setting up a single agency responsible for collecting data for all administrative registries (except data exchange between HIFs and providers), and redistributing this data to the stakeholders originally responsible for the data gathering, the Czech authorities can ease the administrative burden for providers, who would only have to communicate with single entity. For some databases (such as those maintained by SUKL) such a move may prove unfeasible at present, however the overall number of data gathering agencies does need to be lowered.

A more centralised system for data gathering could, at least partially, address the problems with linkage between the various databases. In this field the Czech Republic can draw on the example of Belgium, which has fairly similar institutional settings (several health insurance funds) and has been able to develop an effective way to merge data from health insurance funds and other sources. The Belgian Intermutualist Agency is legally authorised to link datasets not only from various health insurance funds, but also from other partners such as the Committee for Social Affairs. The strong legal foundation of this agency and the inclusion of representatives from the Belgian Privacy Protection Commission in its governance structure allows the agency to link various data in an environment with institutionally fragmented data gathering and strict personal data protection rules (OECD, 2013). The NRC, the Czech organisation most resembling the Intermutualist Agency, lacks the legal foundation necessary to ensure that data linkage is conducted on a regular basis and from all relevant sources, unhindered by the particular interests of either health insurance funds or providers. The

current foundations of the NRC are lacking, not only with respect to definition of its data linkage responsibilities, but also with respect to stable financing and governance. Czech policy makers should consider introducing more legal grounding for data linkage in health care, stabilising the governance of this process either by strengthening the status of the NRC or by allocating these responsibilities to an established government agency such as UZIS.

In-depth data analysis available to the public and/or policy makers should be a standard outcome of data gathering

The Czech Republic would benefit from a more comprehensive analysis of the data it collects. Emphasis on the added value of the output should be one of the key messages of any long-term data infrastructure strategy. Only by producing relevant output can policy makers and the public be persuaded to focus on enhancing the current data infrastructure. The Czech authorities should therefore consider either putting more pressure on data gathering agencies such as UZIS to provide more in-depth analysis or substantially widening co-operation with academia and other stakeholders with analytical capability. The development of some government associated centres of excellence in health data analytics might prove advantageous, as it would ensure existence of unbiased analyses.

Analysis with respect to quality of care and the benefits of certain procedures (see Chapter 3 on prevention) is especially lacking in the health insurance sectors. The HIFs, which are now seen by many stakeholders as a mere redistributive agencies, should therefore strive to assert themselves as organisations with strong analytical capabilities, able to guide patients and actively pursue (and demand) improvements in outcomes of care in their relations with providers.

Greater data transparency will create a data infrastructure better oriented to the needs of its stakeholders

The level of openness regarding Czech health care data is relatively low. Current arrangements are prone to creating information asymmetries and often do not supply patients with enough information to enable them to make an informed choice of health care provider. The Czech authorities should, as a part of a long-term strategy, outline the gradual process of opening up data to relevant stakeholders, and to some extent the public. There is no reason why providers should not have the ability to compare themselves with their peers at least with some basic statistics. The Czech mammographic screening programme, where an anonymised league table of

providers' performance is regularly published, is an example of what could be achieved on a wider scale.

At the same time, policy makers will have to carefully evaluate the quality of various data sources (especially those where the quality of data supplied by the providers can vary significantly), in order to ensure valid comparisons and avoid discouraging data reporting. Open comparison and benchmarking could produce controversies and expose providers to unfair criticism resulting from misinterpretation of the data.

Balancing these issues with the legitimate need for information is one of the key challenges the Czech health data authorities need to meet. The Czech Republic is not the only country facing difficult decisions in this area and consequently there is a possibility to learn from how this issue has been resolved in other OECD countries. The Swedish experience is particularly relevant. The Swedish system of monitoring quality produces some comparison between health outcomes statistics for several diagnoses at the level of individual providers. Public availability of these statistics leads to very quick adoption of up-to-date guidelines as providers can face considerable pressure if their results are below average (OECD, 2013).

The Czech Republic needs to consider the experience of other countries in the field of personal data protection

The absence of national guidelines for sharing, anonymising and protecting health data is hindering the progress of the Czech data infrastructure. Decisions whether or not to comply with data-sharing requests from academia as well as the private sector should be made more transparent and user-friendly. Sharing data with academia and other stakeholders with analytical capabilities will require standardisation of data anonymisation and sharing procedures to ensure sufficient protection of data.

A considerable number of OECD countries are capable of providing the health data to researchers and benefit from their findings (OECD, 2013). The adoption of existing data protection guidelines from other OECD countries would save the Czech authorities the considerable time and resources. In Finland, the National Institute for Health and Welfare (THL) is long established as the single institute responsible for collecting, analysing and disseminating an extensive range of health and social welfare statistics. It is able to produce mortality rates after a named health care episode at 7, 30, 90 and 365 days for example. Recent reforms in Denmark have consolidated the role of the Statens Serum Institut (SSI) as the central point for several data streams, with the specific intention of enabling more extensive data linkage (OECD, 2013).

Furthermore, the process of setting up a single agency responsible for data linkage and anonymisation, would allow the Czech authorities to address many of the issues associated with personal information protection. The inclusion of patient groups and those responsible for privacy protection monitoring in the Czech Republic (mainly the Office for Personal Data Protection) in the governance of such an entity may also help alleviate concerns about the misuse of data. The combination of rigorous guidelines with institutional simplicity of these processes could ensure that more data is shared more safely.

More outcome data should be gathered for the purposes of policy making and evaluation of quality

For some diseases, such as cancer, the registries contain a lot of clinical data that could be used to assess quality. However, the Czech Republic could do more in this regard. Until now, the Czech medical societies have often taken the lead by setting up the voluntary registries (such as those for diabetes), but in order to promote quality system-wide, these registries need to be made compulsory. Without compulsory data gathering, those who do not perform well do not have an incentive to report data. The Czech authorities should therefore work with the voluntary registries with fairly established data structures and make them compulsory, to incentivise medical societies and academia to create more new diseases registries, for which data-based quality control would be feasible and cost-effective.

2.5. Conclusion

The data infrastructure of the health care system in the Czech Republic is one of the areas where large efficiency gains could be achieved by addressing several issues without necessarily incurring large costs. There are pockets of excellence such as the Czech National Oncological Register, but the overall data infrastructure and data analysis needs to be improved. A satisfactory data infrastructure is a necessary tool for evaluation, promotion and rewarding quality, and can also save considerable resources by reducing duplicities and waste in the health care system.

The Czech authorities should promote collection of more outcome data, address the overall fragmentation of data gathering, resolve personal information protection issues by drawing on the experience from other OECD countries, promote more in-depth analyses and added value from data gathering, ensure more data linkage is conducted and make more data available to the research community and finally make outcomes of data gathering more open to the policy makers and public.

The Czech Republic is still at the beginning of the path to fully operational state-wide electronic health records. This presents the Czech authorities with an additional challenge, but also provides an opportunity to learn from the mistakes and successes of similar undertakings in other OECD countries. The pioneers in this field often focused on functionality within individual clinics or hospitals, but failed to grasp the potential of collecting data for quality monitoring and the formulation of health policies and guidelines. The Czech Republic can learn from these mistakes and, when considering the introduction of various forms of electronic health records, build its architecture also with regard to secondary use of the health data.

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Annex 2.A1.

Health care data in the Czech Republic

Table 2.A1.1. An overview of Czech health care data

This table does not aim to give an exhaustive account of the data available within the Czech health care system, but lists the most relevant sources.

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
Czech National Cancer Registry (NOR)	KSRZIS (processor) together with UZIS (administrator)	Health Services Act No. 372/2011, compulsory to send data for all providers in which cancer was diagnosed, treated or patient discharged to, population-wide, high-quality	Basic socioeconomic data, anamnesis, diagnosis, staging, cytology, treatment data, data about death (if applicable), identification of treatment-giving providers	Yes, individual data
National registry of hospitalised patients	UZIS	Health Services Act No. 372/2011, compulsory to send data for every provider in which the inpatient care for patient ended, population-wide, high-quality	Provider-related data, basic socioeconomic data of the patient, data about hospitalisation (services rendered, timing of the hospitalisation), diagnoses, data about ending of treatment (need of further care when discharged, death)	Yes, individual data
National Registry of Reproduction Health – registry of assisted reproductions	UZIS	Health Services Act No. 372/2011, compulsory to send data for providers of assisted reproduction services, population-wide, high-quality	Anamnesis, data about the process of assisted reproduction cycles, outcome data	Yes, individual data
National Registry of Reproduction Health – register of newborns	UZIS	Health Services Act No. 372/2011, compulsory to send data generally for provider who cares for infant after the birth, population-wide, high-quality	Birth-related data, identification data of provider, mother and infant, data about provided care (diagnoses, complications, congenital malformations), discharge-related data	Yes, individual data

Table 2.A1.1. An overview of Czech health care data *(cont.)*

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
National Registry of Reproduction Health – register of congenital malformations	UZIS	Health Services Act No. 372/2011, compulsory to send data for all providers which recognised the congenital malformation, population-wide, high-quality	Anamnesis, diagnoses, socioeconomic data of mother, basic pregnancy and birth-related data	Yes, individual data
National Registry of Reproduction Health – register of mothers	UZIS	Health Services Act No. 372/2011, compulsory to send data for providers where the birth has taken place and/or where mother was hospitalised after the birth, population-wide, high-quality	Anamnesis (number of preceding births, abortions etc.), basic socioeconomic data, pregnancy-related data, birth-related data, basic infant data (e.g. gender)	Yes, individual data
National Registry of Reproduction Health – abortion registry	UZIS	Health Services Act No. 372/2011, compulsory to send data for provider servicing the patient or registering gynaecologist, population wide, high-quality	Patient anamnesis, basic socioeconomic data, the type of abortion	Yes, individual data
National registry of Cardiovascular Surgery and interventions	KSRZIS (processor) together with UZIS (administrator)	Health Services Act No. 372/2011, compulsory to send data for provider who conducted operation or intervention, population-wide, high-quality	Anamnesis, before-intervention diagnostics, before intervention support, operation/intervention data, after-operation data (treatment, patient status); less detailed data if patient is only catheterised or in case of only angioplasty	Yes, individual data
National registry of joint replacement	KSRZIS (processor together with UZIS (administrator)	Health Services Act No. 372/2011, compulsory to send data for provider who conducted the hip replacement, population wide, high-quality	Anamnesis (date of preceding implantation etc.), the cause of reoperation, hip replacement-related data, surgery-related information	Yes, individual data

Table 2.A1.1. An overview of Czech health care data *(cont.)*

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
National registry of physicians, dentists and pharmacists	UZIS	Health of the People Act No. 20/1966 – was amended by Health Services Act No. 372/2011, but Constitutional Court struck down the part regarding this registry	Information about education, employment, identification data for health care professionals	Yes, individual data
National registry of medical aids	UZIS with ministry	Semi-voluntary activity of the ministry (based on Freedom of Access to Information Act), high data quality	Information about the approval process	n.a.
The National system for reporting adverse events	UZIS	Voluntary (compulsory for hospitals directed by the ministry), expert estimate: 10-20% of all actual adverse events captured	Gender of patient, level of (potential) damage, detailed classification of the adverse event	No, data nor reported with identifiers
Diabetological registries	Czech Diabetes Society in connection with university hospitals	Voluntary, no estimates on quality and coverage of data available	Registries contains basic information about patients with insulin pump, pregnant women with type 1 diabetes, children with type 1 diabetes	No, individual but anonymised data
Disease-specific registries of Institute for Biostatistics and Analyses	Institute for Biostatistics and Analyses	Voluntary, the quality and population coverage differs registry from registry	Large number of disease specific registries designed for specific purposes (e.g. monitoring of patients with certain type of treatment)	SAA

Table 2.A1.1. An overview of Czech health care data *(cont.)*

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
Reports about ambulatory care activities ("Reports class A")	UZIS	Health Services Act No. 372/2011, compulsory for every provider of ambulatory care to send data, population wide, high-quality	For every medical specialty different report, contains usually information about health care professionals' and patient numbers and numbers of cases of various diagnoses (in some cases more detailed patient distribution – e.g. age, gender, severity of the case), provided mostly on yearly basis	No, aggregate data, theoretically possible to link at provider level
Reports about economics of providers ("Reports class E")	UZIS	Health Services Act No. 372/2011, compulsory for either all providers or selected sample (depends whether on type of report and provider), data quality high (apart from often questioned information about expenditures' structure of providers)	Information about numbers and salaries of health professionals (divided by types), income and expenditures of providers (divided by class of expenditures – e.g. pharmaceuticals, salaries, food), basic accounting entities, provided mostly on year to year basis	SAA
Reports about inpatient facilities and their usage ("Reports class L")	UZIS	Health Services Act No. 372/2011, compulsory for all inpatient providers, population wide, high-quality	Number of beds (divided by wards, types), usage, provided on year to year basis or every six months	SAA
Reports about medical equipment ("Reports class T")	UZIS	Health Services Act No. 372/2011, compulsory for all inpatient providers apart from hospices and selected outpatient providers, high-quality data but occasional problems with up-to-date classification of medical equipment	Numbers, age and usage of various medical devices (roentgens, CT-scans, irradiators etc.)	SAA

Table 2.A1.1. An overview of Czech health care data *(cont.)*

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
Outpatient billing claims	Health insurance funds (HIFs)	Necessary data for billing purposes and controlling can be gathered by Health insurance funds according to Public Health Insurance Act No. 48/1997. Data quality tends to be very high, because mistakes may have direct pecuniary results for the provider	List of all services rendered (according to the List of Procedures – very detailed description of care), main diagnosis, other diagnoses, the identification of provider, medical specialty which rendered the services, in case of inpatient care also the category of patient (with respect to his/her self-sufficiency)	Yes, individual level data
Pharmaceutical prescription billing claims	Health insurance funds	SAA, provided by pharmacies issuing the drug to the patient, not by prescribing physician	List of prescribed drugs, information about co-payments, identification of issuing physician, diagnosis	Yes, individual level data
Medical aids and drugs issued to the patient directly by the provider	Health insurance funds	Necessary data for billing purposes and controlling can be gathered by Health insurance funds according to Public Health Insurance Act No. 48/1997. Data quality tends to be very high, because mistakes may have direct pecuniary results for the provider	List of issued drugs and medical aids/material, identification of the patient	Yes, individual level data
Issued pharmaceuticals database	State Office for Drug Control	Gathered by SUKL in accordance with Pharmaceuticals Act No. 378/2007	Detailed information about the drug which was issued, identification of pharmacist	No, only the birthdate of the patient is reported

Table 2.A1.1. An overview of Czech health care data *(cont.)*

Data source	Administrator	Legal basis for data gathering, data quality	Data content overview	Possibility of linkage[1]
Pharmaceuticals registry	State Office for Drug Control	Gathered by SUKL in accordance with Pharmaceuticals Act No. 378/2007	ATC classification, Prescription regime, reimbursement information, digital copy of information leaflet, registration information	n.a.
Reporting of directly managed providers to the ministry	Ministry of Health	General responsibility of state-run organisation to report to their managing bodies	Detailed information about economy of provider	n.a.
Reporting of health insurance funds to the ministry	Ministry of Health	Reporting according to the laws governing conduct of Health insurance funds, high data quality	Income, balance of accounts, expenditures-related information (expenditures divided according to the segments of care, income according to the source of the income), reported quarterly	n.a.
Transplantation registries	Co-ordination center for Transplantations	Gathering information in accordance with Transplantation Act No. 285/2002	Basic information about the individuals waiting for transplantation, donors and performed transplantations	Yes, individual level data

1. Possibility of linkage refers to the technical possibility – i.e. structure of the data, not to legal possibility and requirements.

Chapter 3

Screening and prevention programmes in the Czech Republic

The Czech Republic has established a range of preventive health care initiatives and has made substantial progress in reducing mortality from cancer and from cardiovascular disease. Yet, not all the outcomes linked to the prevention and early diagnosis programmes are reassuring – indeed the country faces a substantial epidemiological challenge in terms of increasing rates of smoking, obesity and alcohol abuse, even among children. There are also governance challenges. In particular, a biennial universal general health check is unlikely to offer value for money and not enough is known about adherence to guidelines for secondary prevention of stroke and heart attacks.

A priority therefore is to develop the information infrastructure underpinning preventive health care. Where value for money cannot be demonstrated, consideration should be given to dropping programmes such as general health checks and redirecting this investment to other health care activities. At the same time, the low rates of uptake of interventions proven to reduce mortality – such as cancer screening – point to the need to widen access to professionals and the public and incentivise both to engage in preventive health care more actively.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

3.1. Introduction

The early diagnosis and prevention of cancer, cardiovascular disease and diabetes are priorities in the Czech health care system, as in all other OECD countries. Some elements of the preventive health care put in place for these conditions is excellent, notably the quality control surrounding breast screening, the early introduction of screening for colorectal cancer relative to other OECD countries and the surveillance carried out by the Czech Republic's long-standing cancer registry. Between 1990 and 2011, mortality from cancer fell by 25.3%, far outstripping the OECD average reduction of 14.4% and demonstrating the value of these policies and institutions.

A glance at other relevant health outcomes, however, reveals that there remains much to achieve. Whilst incidence rates of breast and cervical cancer are comparable to OECD averages, men in the Czech Republic have the third highest rate of colorectal cancer in the world and women the fifteenth highest. And in terms of cardiovascular disease, although mortality from ischaemic heart disease (IHD) fell by 41.0% between 1990 and 2011, and mortality from cerebrovascular disease (CVD) by 65.6%, these reductions are no different from trends observed more broadly across the OECD. Of significant concern, Czech mortality rates from ischaemic heart diseases and stroke remain the fourth highest in the OECD at 260.4 and 106.4 deaths respectively per 100 000 population in 2011(compared to OECD averages of 122.2 and 69.1).

Such mortality rates, coupled with the worrying observation that rates of obesity, smoking and harmful alcohol consumption are all *increasing* in the Czech Republic (a trend that is observed in few other countries), point to the need to continually assess, assure and improve the quality of preventive and early diagnosis services. This chapter explores the quality of these services for breast, cervical and colorectal cancer – the three cancers with the highest mortality burden in the Czech Republic for which screening is available. The quality of primary and secondary prevention for cardiovascular diseases (including diabetes, the focus of chapter 4) is also considered.

The chapter finds that there are several means through which the quality of systems of care for prevention and early diagnosis can be improved: by improving population uptake of cancer screening, disinvesting from universal general health checks where value for money cannot be demonstrated, taking a "whole pathway of care" approach to both cancer and cardiovascular disease, developing the capacity of primary care to deliver preventive care and strengthening the information infrastructure underpinning primary care.

The first part of the chapter describes the major screening and prevention programmes in place in the Czech Republic, whilst Section 3.3 describes the population health outcomes linked to them, which together paint a challenging epidemiological picture. Section 3.4 describes some of the operational challenges faced by the programmes and the chapter closes with a series of recommendations on how to best meet the challenges identified. In addition, aspects of preventive health care specific to diabetes are considered in Chapter 4.

3.2. Configuration of screening and prevention programmes in the Czech Republic

The importance of prevention and early diagnosis is undisputed. Only around 5-10% of the burden of cancer or of cardiovascular disease has a genetic component. Modifiable risk factors such as smoking, obesity, exercise, environmental exposures (and, in the case of cervical cancer, sexual exposure to the human papilloma virus) explain as the vast majority of these diseases. In response, the Czech Republic has put in place a number of ambitious national programmes focussed on screening and prevention.

This section describes the policies and programmes in place in the Czech Republic which aim to identify breast, cervical and colorectal cancer early, as well as describing the general health check offered to all adults to screen for cardiovascular disease, diabetes and other conditions.

National screening programmes for breast, cervical and colorectal cancer have been established in the past decade

In common with most OECD countries, the Czech Republic has established a number of cancer screening programmes on a nationwide basis. The national breast cancer screening programme started in 2002; women over the age of 45 are offered mammography every two years with the costs covered by their health insurer. Screening takes place in one of 69 specially developed diagnostic centres, which are able to offer follow-up ultrasound and/or biopsy within a few days of an abnormal mammogram. Most mammograms are read independently by two specialist radiologists and results communicated to the woman and her GP within 48 hours.

The national cervical cancer screening programme started in 2008. All women registered with a gynaecologist are eligible for a smear test (cytological examination), with costs reimbursed by their insurer. This is notably later than several OECD countries, many of whom started cervical cancer screening in the 1990s or 1980s. A network of 37 accredited cytological laboratories return results to the gynaecologist within

three weeks. Normal smear tests are recommended to be repeated annually; rescreening or treatment pathways are set out for women with abnormal smear tests, depending on the abnormality.

The national colorectal cancer screening programme started in 2009. Men and women between 50 and 54 are eligible for annual faecal occult blood testing by the immunochemical method (FIT), a home-based test that individuals return to their GP or gynaecologist to be read. After 55, individuals may choose between FIT every two years or colonoscopy every ten years. The Czech Republic was one of the first countries in the OECD area to offer a national programme of colorectal cancer screening. To date, 168 centres for colonoscopy have been accredited.

A feature common to all the screening programmes described above is that screening is opportunistic – that is, despite being nationwide, there is no population-based system of calling individuals within the target group in for screening. Until recently, timely attendance for screening depended upon the motivation of the individual, with an additional possible prompt from their GP.

Box 3.1. The benefits and harms of breast cancer screening

The balance of benefits and potential harms from breast cancer screening has been the subject of much debate. Screening should benefit women by identifying latent cancers, enabling earlier treatment and improving survival. There is a risk of harm, however, if cancers that would never have become clinically apparent are identified and the woman opts for treatment such as surgery, radio- or chemotherapy ("over-diagnosis").

In the United Kingdom, a panel of epidemiologists and other specialists have recently published a review of the evidence. In a meta-analysis of 11 randomised trials comparing women invited to screening with controls not invited and focussing on women aged 50-70 years being invited to screening every three years (the model in the United Kingdom), the panel found that routine breast screening leads to a 20% relative risk reduction compared with no screening. This is equivalent to one breast cancer death prevented for every 235 women invited for screening, or 43 breast cancer deaths prevented per 10 000 women years invited to screening for the next 20 years. The panel also concluded, however, that 19% of breast cancers diagnosed through screening would not have caused any problem if left undiagnosed and untreated. Although a seemingly high rate, the panel noted a scarcity of reliable data in this area and the need for more research to assess the extent of over-diagnosis.

Overall, the panel concluded that breast screening extends lives and that its benefits outweigh the harms. Of note, qualitative evidence from the target population finds that many women believe the balance of benefits to risks is acceptable and welcome the opportunity to take part in breast screening (Independent UK Panel on Breast Cancer Screening, 2012).

From January 2014, a new programme will use details held in insurers' databases to write to individuals who have not recently attended a cancer screening examination to inform of the screening tests available to them. What is still lacking, however, is a national population-based system that issues personalised invitations to all Czech citizens regularly, based on age, gender and screening history.

Cancer screening occurs within a networked system of cancer care

Cancer screening occurs within the broader framework of a network of comprehensive cancer care centres and a national cancer control plan. The plan has a number of objectives all linked to the ultimate aim of reducing the burden of cancer in the Czech Republic, including improving rates of early diagnosis, in part through more effective screening, accrediting treatment centres on the basis of workforce skills, equipment, self-evaluation and communication, and encouraging research and innovation. The Czech Society for Oncology exists as a professional network, a significant part of whose work is dedicated to supporting patients through education and information, including around screening and prevention.

A particularly notable feature of the wider quality architecture surrounding cancer care is the Czech National Cancer Registry (CNCR), described more fully in Chapter 2. The CNCR, established in 1977, is a nationwide, obligatory reporting system and contains information on the tumour type, treatment modalities and clinical outcomes of more than 1.7 million malignant tumours. It is one of the longest established cancer registries in Europe and makes data publicly available on a linked website dedicated to visualising cancer statistics, www.svod.cz.

The Institute of Biostatistics and Analyses at Masaryk University is host to a number of research projects that use cancer registry data. Analyses and research, however, largely relate to the epidemiology of cancer or to the clinical outcomes of novel therapeutic approaches. In other words, the CNCR does not primarily function as a quality register oriented toward measuring and improving the quality of routine care pathways, clinical outcomes and patient experiences. An exception relates to breast cancer screening: the Institute provides mammography centres with regular reports on detection rates, stage at diagnosis etc., to enable them to monitor and improve screening effectiveness.

A comprehensive health check is offered every two years to all adults, irrespective of personal risk profile

A ministerial decree stipulates that insurers offer all enrolees, alongside the usual routine and emergency medical care, a medical check-up every

two years and a dental check-up every six months. As well as taking a personal medical, social and occupational history, the medical check-up consists of blood pressure and weight measurements; a brief assessment of vision and hearing; examination for skin lesions suggestive of cancer; rectal, testicular or breast examination if deemed necessary; and urinalysis. Samples of blood are taken to measure cholesterol levels in new patients and in adults at 30, 40, 50 and 60 years of age; additional samples are taken to measure blood sugar levels in new patients and in all patients aged over 40, every two years. An electrocardiogram is performed on all patients aged over 40, every four years. Screening for breast, cervical and colorectal cancer is offered for patients in the age groups described earlier, and vaccination schedules are updated.

This comprehensive medical check-up is generally performed by GPs, who are mainly paid on a capitation basis. For preventive activity such as the general health check, however, they are paid an additional fee, incentivising them to offer this service.

The Czech Republic is also a signatory to the *Health 2020* policy framework, elaborated by the World Health Organization. This focuses on improving health and reducing health inequalities across four priority areas: investing in a life-course approach, tackling the major non-communicable and communicable diseases, strengthening health systems and creating resilient communities. Most of the content around tackling non-communicable diseases, however, focuses on implementation of existing declarations and strategies such as the Framework Convention on Tobacco Control or the Global Strategy on Diet, Physical Activity and Health.

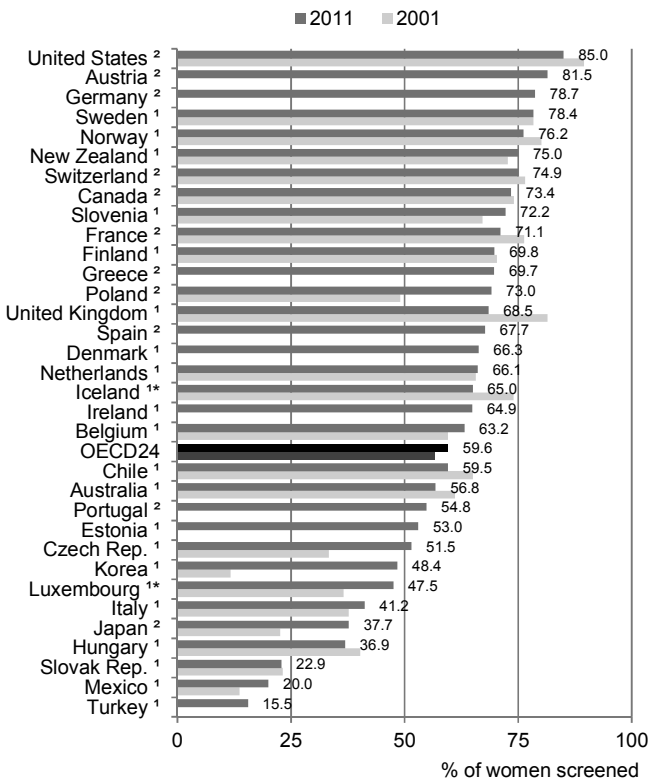
3.3. Current outcomes associated with screening and prevention programmes in the Czech Republic

This section examines some of the outcomes associated with the screening and prevention programmes described above. Whilst breast cancer screening appears to have been successful at diagnosing cancers at an earlier stage, benefits to population health from cervical cancer and colorectal cancer screening are less apparent. Low population uptake of these two screening programmes is likely to be responsible to for this lack of benefit, to a significant extent. Turning to cardiovascular mortality, the latest national epidemiology paints a worrying picture. Despite falling mortality rates, the Czech Republic still has some of the highest death rates in the OECD. Of even greater concern, rates of smoking, obesity and harmful alcohol consumption are worsening – even amongst children.

Cervical cancer screening coverage is low and has made little impact on the incidence of disease

The most recent internationally comparable data show that just over half (51.5%) of Czech women aged 20-69 participate in a cervical screening programme. Although this is not too dissimilar to the OECD average (59.8%) and shows marked improvement over the past decade, it is considerably less than many other countries achieve. Germany, Sweden, Norway, Canada, New Zealand and the United States all achieved coverage above 75%, for example. Furthermore, socioeconomic differences in screening coverage are wider in the Czech Republic than in most other countries.

Figure 3.1. Cervical cancer screening rates

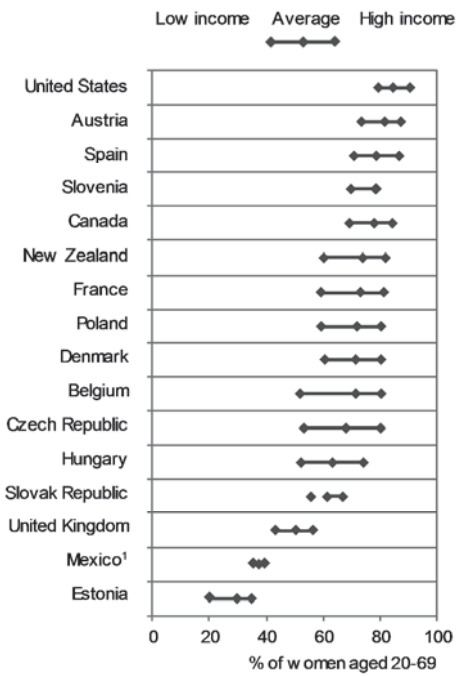


1. Programme.
2. Survey.
* Three-year average.

Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en

Cervical smear tests are intended to detect pre-cancerous lesions (as well as cancer itself), so the incidence of cervical cancer is a good reflection of the effectiveness of the screening programme. Data from the CNCR shows that the crude incidence of cervical cancer has been stable around 19-22/100 000 women over the past 20 years (equivalent to around 1 000 new cancers per year), leading researchers to the conclusion that few benefits of opportunistic cervical screening are manifest at the population level, probably due to a relatively small proportion of participating women (Tachezy, 2007). In addition, the proportion of new cases diagnosed at stage III or IV is around a third, a proportion which has changed little over recent decades, indicating a failure of the screening programme to detect cancers at an earlier, more easily treatable, stage.

Figure 3.2. Socioeconomic differences in cervical cancer screening



Note: The data source for some countries may be different to that used for reporting breast and cervical cancer screening in Chapter 5.

1. Visits in the past 12 months.

Source: Devaux, M. and M. de Looper (2012), "Income-related Inequalities in Health Service Utilisation in 19 OECD Countries", *OECD Health Working Papers*, No. 58, OECD Publishing, Paris, http://dx.doi.org/10.1787/5k95xd6stnxt-en.

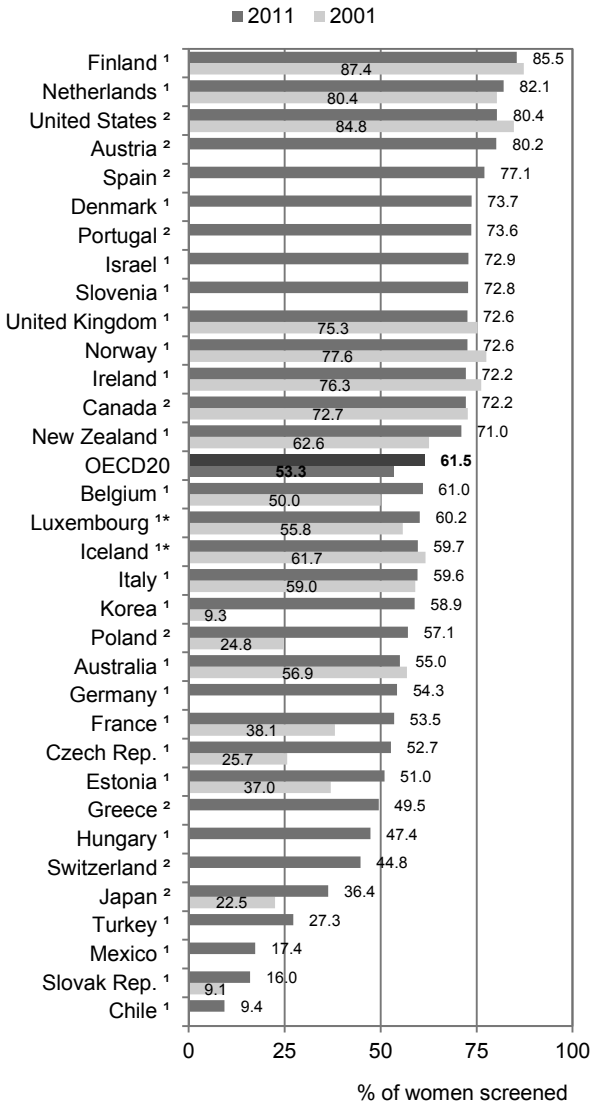
Breast cancer screening appears to have been successful at diagnosing cancers at an earlier stage

Around 6 500 women (and around 40 men) are diagnosed with breast cancer each year in the Czech Republic, equivalent to a crude incidence rate of 121.3 breast cancer patients per 100 000 women in 2010. This is around average for OECD countries.

Most OECD countries have adopted breast cancer screening programmes as an effective way for detecting the disease early. The EU guidelines (European Commission, 2006) suggest a desirable target breast screening rate of at least 75% of eligible women in European countries, although the periodicity and population target groups vary across countries and are still the subjects of debate (OECD, 2013b; see also Box 3.1). The latest data (2012) show that the Czech Republic achieves a screening rate of 56.6%, double that of a decade ago, but still considerably less than most OECD countries. Finland, the Netherlands, the United States and Spain, for example, all achieve rates over the recommended 75%. The pro-rich inequality in breast cancer screening in the Czech Republic is smaller than that seen for cervical cancer screening and considerably less that that seen in several other countries.

In contrast to a cervical smear, mammography detects established cancerous lesions and so cannot be expected to have any effect on breast cancer incidence. In fact, the incidence of breast cancer has been rising in the Czech Republic as in many other countries. An effective screening programme should increase the proportion of breast tumours diagnosed at an early stage however. Data from CNCR shows that this is indeed the case over recent decades – the proportion of cases diagnosed at the earliest stage (stage 1) has increased from around 15% in the 1980s to around 41% in 2010. Furthermore, annual mortality has also stabilised at around 30 deaths per 100 000 women (equivalent to around 1 650 deaths per year) which, given a background rising incidence, is also a measure of the success of early diagnosis and treatment. Of note, however, the trend towards earlier stage tumours has stabilised over recent years.

Figure 3.3. Breast cancer screening rates



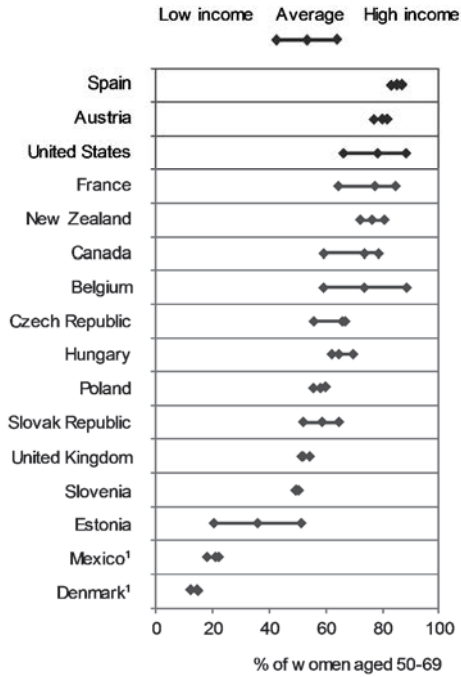
1. Programme.

2. Survey.

* Three-year average.

Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

Figure 3.4. Socioeconomic differences in breast cancer screening



Note: The data source for some countries may be different to that used for reporting breast and cervical cancer screening in Chapter 5.

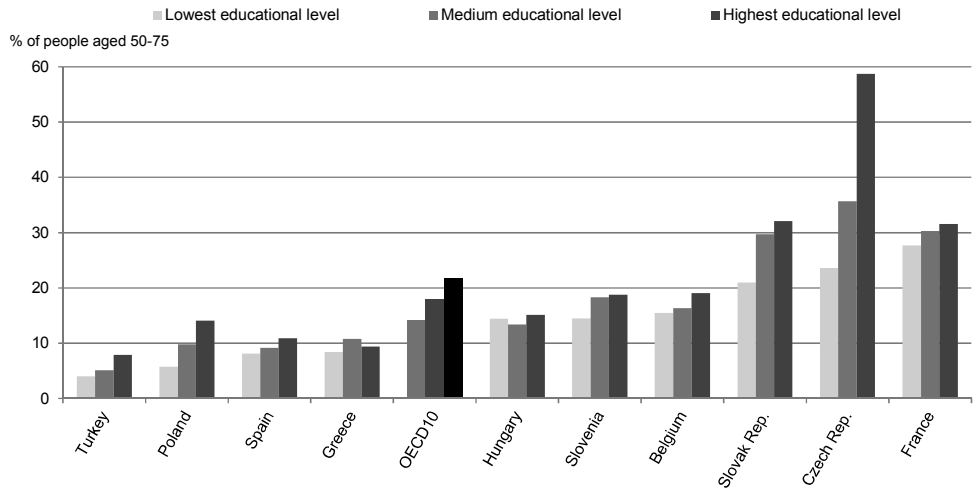
1. Visits in the past 12 months.

Source: Devaux, M and M. de Looper (2012), "Income-related Inequalities in Health Service Utilisation in 19 OECD Countries", *OECD Health Working Papers, No. 58,* OECD Publishing, http://dx.doi.org/10.1787/5k95xd6stnxt-en.

Colorectal cancer screening is low and has made little impact on diagnosing disease at an earlier stage

Recent data from the national screening programme indicate that 25.0% of the target population in the Czech Republic have undergone screening for colorectal cancer, well below the programme's stated 50% target coverage, although part of a steadily increasing trend. Meaningful comparison of screening rates across different countries is very difficult because of differences in the combinations of screening modalities (FIT and/or colonoscopy) that various national programmes employ. Rates of colorectal cancer screening for people aged 50-75 vary by education level in most countries, however the variation in screening rate is particularly large in the Czech Republic (Figure 3.5).

Figure 3.5. Socioeconomic differences in colorectal cancer screening



Source: *Eurostat Statistics Database 2013,* http://epp.eurostat.ec.europa.eu/.

Colorectal cancer screening is potentially able to detect both precancerous lesions (that is, adenomas at colonoscopy) as well as established cancerous lesions. Hence, both incidence and the stage of tumour at diagnosis reflect performance of the screening programme. In terms of incidence, data from CNCR suggest a stabilisation or even slight decrease in rates, to about 8 250 newly diagnosed cases per year (2010). This stabilisation or even a decrease in colorectal cancer incidence rates can be attributed to the increasingly better population coverage by preventive programmes, including organised screening programmes. Less reassuringly, however, there has been little improvement in diagnosis colorectal cancers at an earlier stage. More than half of cancers are diagnosed at the most advanced stages III or IV (which have the worst survival outcomes) a proportion which has changed little, despite the presence of a screening programme.

Cardiovascular mortality has improved over recent years but remains high

The Czech Republic has some of the worst mortality figures for both IHD and CVA in the OECD. Death rates from IHD are 260.4 per 100 000 population (more than double the OECD average of 115.2) and from CVA are 106.4 per 100 000 population (compared to an OECD average of 69.1). Although Czech rates cluster alongside those of other central and eastern

European states and have declined considerably over recent years, it is clear that there remains substantial progress to be made in preventing and treating these diseases.

Such high death rates from circulatory disease are in large part due to a heavy prevalence of risk factors such as smoking, high alcohol consumption and obesity. The Czech Republic has the sixth highest prevalence of adult daily smokers in the OECD at 24.6% (OECD average 20.9%). Of significant concern, smoking prevalence has increased by 5% over the past decade (compared to an average reduction of 21% across OECD countries), driven largely by more young women taking up smoking (Korea and Portugal demonstrate the same phenomenon).

Alcohol consumption and rates of obesity compare more favourably with other countries. Although alcohol intake, at 11.5 litres per adult per year, is higher than the OECD average of 9.4 litres, this average is heavily skewed by very low consumption in Turkey and Israel. Rates of adult obesity, at 21% are also greater than the OECD average (17.6%) but nearly all countries below the OECD average use self-reported weight measures (which are known to suffer from an underestimation bias) whereas Czech data are objectively measured.

Irrespective of comparison with other countries, a worrying feature is the increasing prevalence of these risk factors in the Czech Republic. Over the last 20 years, alcohol consumption has increased by two litres per capita per year (compared to an average reduction of four litres across the OECD) and over the last decade, rates of obesity have increased by 50%, one of the steepest increases in the OECD.

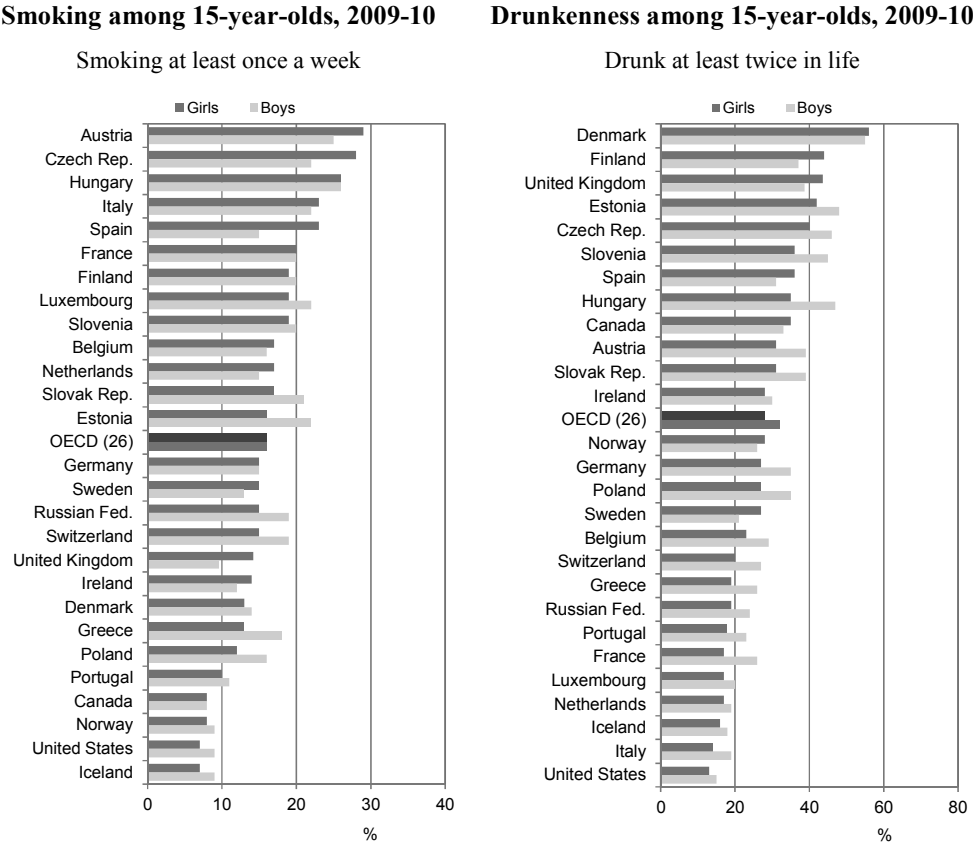
Primary preventive efforts are failing – especially amongst children

Earlier in the Chapter, the Czech Republic's high rates of smoking, obesity and alcohol consumption were highlighted and in particular the fact that levels of all three are increasing in contrast to other OECD countries, signalling a failure of primary preventive efforts. Of particular concern are high rates of unhealthy lifestyles in Czech children. Children who establish smoking habits in early adolescence increase their risk of cardiovascular diseases, respiratory illnesses and cancer. They are also more likely to experiment with alcohol and other drugs. Alcohol misuse is itself associated with a range of social, physical and mental health problems, including depressive and anxiety disorders, obesity and accidental injury (Currie et al., 2012).

28% Czech 15-year-old girls and 22% boys report smoking at least once a week, amongst the highest rates in the OECD (the greater prevalence amongst girls is also unusual and only otherwise seen in Spain). High rates

of drunkenness are also reported in the same age group (Figure 3.6), with boys reporting higher than girls in common with most other OECD countries. Risk-taking behaviours among adolescents have fallen in many countries (OECD levels of smoking for both sexes are at their lowest for a decade), increasing rates of smoking and/or drunkenness among adolescents in the Czech Republic are clearly a cause for concern. Estonia, Hungary, Poland, the Slovak Republic and Spain also demonstrate increasing rates of adolescent smoking and drunkenness (OECD, 2013a).

Figure 3.6. Smoking and drunkenness amongst 15-year-olds



Source: Currie, C. et al. (eds.) (2012), *Social Determinants of Health and Well-being Among Young People. Health Behaviour in School-aged Children (HBSC) Study: International Report from the 2009/2010 Survey*, WHO Regional Office for Europe, Copenhagen.

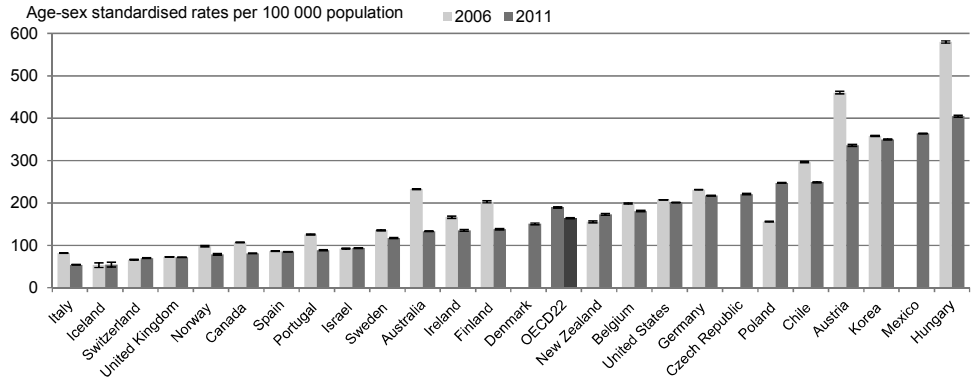
A similar picture of worsening children's health is also seen with respect to obesity. Over the past decade, self-reported overweight or obesity amongst Czech 15-year-olds increased from 9% to 15%, one of the steepest increases in the OECD (and comparable to increases seen in Estonia, Poland and Slovenia). Children who are overweight or obese are at greater risk of orthopaedic problems and psychosocial problems such as low self-image or depression, as well as increased risk of being an obese adult (Lobstein, 2010; Currie et al., 2012).

For those in whom cancer or circulatory disease is found, acute care is improving

Cancer survival is one of the key measures of the effectiveness of cancer care systems, and in particular the effectiveness of treatment. There have been marked improvements in survival rates for most cancers in the Czech Republic, pointing to relatively good quality in the acute care sector. For example, five-year relative survival[1] for cervical cancer increased from 61.6% to 64.9% between the periods 2001-06 and 2006-11, for breast cancer from 76.4% to 80.7% and for colorectal cancer from 52.5% to 54.9% between the same periods. Nevertheless, the Czech Republic lies below the average OECD survival rate for all three cancers and amongst the lowest three for breast and colorectal cancer.

The quality of acute care for cardiovascular disease in the Czech Republic has shown more dramatic improvement that seen in cancer care. The reduction in case-fatality rate[2] after AMI is amongst the steepest in the OECD, more than halving from 15.7% in 2001 to 6.8% in 2011. This latter rate suggests better acute care than most peers (the OECD average case-fatality rate being 7.9%). Case-fatality after ischaemic stroke has also fallen steeply, from 16.1% in 2001 to 9.5% in 2011, although remains above the OECD average of 7.8%. An indicator of the quality of primary care comes from looking at hospital admission rates for conditions deemed to be fully manageable in primary care. Of the conditions which are the focus of this chapter, internationally comparable data are only available for diabetes. Here, the admission rate in the Czech Republic is higher than the OECD average (Figure 3.7), possibly signalling weaker primary care systems.

Figure 3.7. Diabetes hospital admission in adults, 2006 and 2011 (or nearest year)



Note: 95% confidence intervals represented by H.

Source: *OECD Health Statistics 2013,* http://dx.doi.org/10.1787/health-data-en.

3.4. Governance challenges faced by screening and prevention programmes in the Czech Republic

Whilst there is a sophisticated quality assurance infrastructure surrounding screening for breast, cervical and colorectal cancer in the Czech Republic, the same cannot be said of the general health check that is offered to all adults every two years. The effectiveness, and value for money, of this universal general health screening – which is principally designed to detect cardiovascular disease – has never been assessed. Linked to this point, although guidelines for the prevention of secondary prevention of cardiovascular disease exist, little is known about whether they are followed in practice. This signals an important missed opportunity to improve risk factor management and reduce deaths from strokes and heart attacks.

Quality assurance around the cancer screening programmes is sophisticated

The breast, cervical and colorectal cancer screening programmes in the Czech Republic follow guidance issued by the European Council (2003/878/EC). This specifies that national screening programmes should be established and should gather data on the screening tests used, subsequent diagnostic procedures and final diagnoses, making this data available to the public and health professionals for monitoring and improvement processes. More detailed recommendations for each specific screening programme have also been published at EU level, with which Czech programmes comply.

Quality assurance around breast screening in the Czech Republic is particularly well developed: each screening centre is required to be accredited by two independent committees. The Breast Cancer Screening Committee at the Ministry of Health (comprising breast radiologists, other professionals managing breast disease, the State Office for Nuclear Safety (SUJB), the General Health Insurance Company (VZP) and other insurance funds and the ministry) accredits screening centres largely around the availability and safety of equipment; the Expert Committee on Breast Radiology (comprising largely radiologists) is more concerned with accrediting the clinical processes established in each screening centre. Data from the screening centres is returned to and analysed by the Institute of Biostatistics and Analyses (IBA) at Masaryk University in Brno, in a data collection process is certified with the ISO 20 000 IT Service Management standards.

For cervical cancer, a similar body, the Cervical Cancer Screening Committee at the Ministry of Health, accredits laboratories reading cervical smear samples according to criteria set out in Decree No. 3/2010 Coll. of MZCR and in the Czech Ministry of Health Gazette No. 07/2007. Likewise, the quality of centres offering colorectal cancer screening is overseen by Board of Colorectal Cancer Screening at the Czech Gastroenterological Society and the Colorectal Cancer Screening Committee at the Czech Ministry of Health and centres are accredited according to standards set out in Decree no. 3/2010 Coll. of MZCR and the Ministry of Health Gazette No. 01/2009.

Quality and value for money cannot be demonstrated for the biennial health check

In contrast to cancer screening and early diagnosis programmes, there is no quality oversight currently in place for the biennial health check described earlier. Furthermore, a cost-effectiveness analysis of the benefits or otherwise of offering such comprehensive, universal screening has not been assessed.

Despite the evidence summarised in Box 3.2, the United Kingdom introduced a policy of offering regular health checks to people aged between 40 and 74 to identify early cardiovascular lung or kidney disease or diabetes, irrespective of their risk profile. In defence of this decision, the authorities claimed the fact that the Cochrane Review lacked relevance given the fact that this type of screening offered has changed over time, from more invasive multiphasic screening that included imaging and blood tests in earlier trials, to less invasive estimates of cardiovascular risk and lifestyle advice in more recent trials. Nevertheless, in August 2013 the government

announced an independent review of the cost-effectiveness the policy. The Danish Government shelved plans for a universal health checks upon the publication of the Cochrane Review.

European guidelines on cardiovascular disease prevention do not support universal screening. Instead, the guidelines suggest that a risk assessment may be considered in adult men over 40 years old and in women over 50 years of age or post-menopausal women in specific circumstances, namely if the person requests it, if risk factors such as smoking, overweight, or hyperlipidaemia are present, if there is a family history of premature CVD or of major risk factors such as hyperlipidaemia or if there are symptoms suggestive of CVD (Perk et al., 2012). Importantly, the guidelines recommend that risk is assessed on the basis of age, sex, smoking status, blood pressure and total cholesterol – rendering some of the elements offered in the Czech programme, such as the electrocardiogram, unnecessary.

Box 3.2. International evidence on the effectiveness of universal health checks

According to syntheses of international evidence, cost-effectiveness of untargeted screening such as that offered in the Czech Republic is likely to be low. The Cochrane Collaboration, in a meta-analysis of 16 large randomised trials with long follow up periods, found that similar health checks no effect on mortality from all causes (risk ratio 0.99, 95% CI 0.95 to 1.03), cancer (1.01, 95% CI 0.92 to 1.12), or cardiovascular disease (1.03, 95% CI 95% CI 0.91 to 1.17) and did not prevent disease (Krogsbøll et al., 2012).

Although nine of the fourteen studies analysed were initiated prior to 1980, and the most recent in 1992, the health checks evaluated were similar to those offered in the Czech Republic, in that most included non-specific searches for any abnormal finding including those suggestive of cancer.

An earlier systematic review (Boulware et al., 2007) included observational studies and also concluded that general health checks had no effect on mortality, disability and hospitalisations compared with usual care. It did make the point, however, general periodic health checks may have benefits in terms of patient reassurance and delivery of health promotion.

Several simulated models of the cost-effectiveness of periodic health checks have been published, such as that by Schuetz et al. (2013). Conclusions from a single simulation models are, however, arguably less informative than metanalyses of several observational or experimental studies.

Guidelines for the prevention of secondary prevention of cardiovascular disease exist, but little is known about whether they are followed in practice

Amongst stroke patients, the risk of a further stroke is around 30% at five years, around nine times higher than the general population; the risk of other cardiovascular events such as a heart attack is also greatly increased (Burn et al., 1994; Touze et al., 2005). Recurrent events are more likely to be fatal than a patient's first stroke (Rothwell, 2005). Several interventions, however, have been shown to be effective in reducing the risk of further cardiovascular events, including aspirin, medications to lower blood pressure and cholesterol, dietary modification and exercise. Hackam et al. (2007) model the combined effect of these interventions and estimate that at least four fifths of these recurrent events could be prevented (or, at the very least, delayed) over five years, assuming additive effects and patient compliance. Even greater risk reductions were additional therapy to be included such as smoking cessation, glycaemic control and anticoagulation in appropriate patients.

Hence identifying and treating underlying diagnoses such as elevated blood pressure or lipids, smoking, overweight and diabetic or pre-diabetic states in patients after a stroke is an essential element of high-quality care. Identification and management is likely to be shared across primary and secondary care, however many national health systems increasingly expect primary care services to take on full responsibility for the long-term management of these conditions.

In the Czech Republic, guidelines covering the secondary prevention of cardiovascular events in people with a history of heart disease, stroke or diabetes are published by the Purkinje Medical Society. Although well recognised and widely disseminated, there are no requirements or incentives for clinicians or patients to follow them in practice, as discussed in Chapter 1. Nor are there any monitoring mechanisms in place to indicate the extent to clinicians routinely measure and treat blood pressure levels, blood sugar and cholesterol levels or other clinical parameters in patients at high risk of cardiovascular events.

The drop in deaths from strokes and heart attacks that the Czech Republic has experienced over recent decades (in line with OECD countries more broadly) indicates improving clinical management of these conditions. Nevertheless, rates of cardiovascular mortality and rates of admission to hospital for diabetes remain some of the highest in the OECD. Hence, the absence of reliable data on secondary prevention signals a profound quality issue and a missed opportunity to improve risk factor management and reduce deaths, as well as reduce unwarranted variation in medical practice and inequalities in the quality of health care across the country.

3.5. Securing a greater quality dividend from screening and prevention programmes in the Czech Republic

There are several means through which the quality of screening and prevention programmes in the Czech Republic can be improved. Regarding cancer screening, additional effort should be made to increase population uptake such that coverage reaches that seen in other OECD countries. Once diagnosed, it is essential that patients have prompt access to high-quality, evidence-based care. Hence, screening should not be seen in isolation – attention to the quality of care across the whole pathway of cancer care is needed. Regarding cardiovascular screening, the cost-effectiveness of the Czech Republic's biennial general health check should be assessed, and if value for money cannot be convincingly demonstrated, disinvestment should occur with funds spent on evidence-based initiatives to reduce smoking, obesity and harmful alcohol consumption. As for cancer, prevention and early diagnosis should not be isolated from a holistic model of care for long-term conditions; in particular, better secondary prevention of cardiovascular disease is needed. The primary care sector has a critical role to play in the prevention, early diagnosis and management of long-term conditions and investment is needed to make sure that the full range of professionals working in this area (including nurses and community pharmacists) are equipped to provide preventive care. Finally, the health care data infrastructure underpinning all these activities should be reformed so that it can assure and improve the quality of preventive care.

Additional effort is needed to increase uptake of cancer screening

Currently, individuals' attendance for cancer screening is largely driven by their General Practitioner reminding them to attend when a test is due. This, as noted, has been associated with relatively low screening uptake, indicating that additional measures are needed to improve population coverage. Several OECD countries have systems in place which contact individuals directly to invite them to screening tests, maintaining contact if further tests are due or if the individual fails to attend. The recent initiative in the Czech Republic to use insurers' databases as source of demographic information to establish a similar call-recall system is a welcome move and should be closely monitored in terms of its impact.

The Czech Republic should also make additional efforts to increase public awareness about the benefits (and potential harms) of regular screening. In particular, recent systematic reviews of effective interventions to promote uptake of screening have underlined the strong evidence underpinning one-to-one education (Sabatino et al., 2012). Group education was also shown to be effective to promote uptake of breast screening.

Notably, interventions which *do not* involve physicians have, in some studies, been shown to be more effective at increasing screening rates (Arroyave et al., 2011), demonstrating the importance of thinking innovatively around the role of nurses working in primary care, of pharmacists and of other professionals capable of delivering preventive health care advice.

In order to support such advice giving, supply-side incentives may have a role, such as giving performance assessment feedback to providers. Earlier, it was noted that The Institute of Biostatistics and Analyses at Masaryk University provides mammography centres with regular reports on detection rates, stage at diagnosis etc. to enable them to monitor and improve screening effectiveness. This model provides a good basis upon which provider-feedback could be extended to other screening programmes. The ability to benchmark and compare local performance against peers will be vital. Time-limited, targeted financial incentives may also have a role.

Particular attention should be paid to increasing rates of screening uptake in socially disadvantaged (such as people with disabilities, or people from less wealthy, less educated or ethnic and linguistic minority groups) groups. Again, programmes emphasizing one-to-one and group education are likely to be most beneficial, and might initially be based on geographically identified areas of high need. Simple, low-cost interventions reorganising the way screening services are offered in primary care clinics have been shown to be effective in increasing uptake rates amongst disadvantaged localities, at least in the short term (Roetzbeim et al., 2004).

Efforts to improve screening uptake and the early diagnosis of cancer should not be applied in isolation. The Czech Republic needs to look for quality improvements across the whole pathway of care for patients with cancer. As discussed at the beginning of this chapter, although there have been marked improvements in survival rates for most cancers in the Czech Republic over recent years, national survival rates for all breast, cervical and colorectal cancers and are below the OECD average and amongst the lowest three for breast and colorectal cancer. Hence, renewed efforts are needed to improve patients' access to prompt, evidence-based care. *Cancer Care: Assuring Quality to Improve Survival* (OECD, 2013b) sets out in detail the full suite of policy actions needed to achieve this, considering the importance of clinical guidelines, effective waiting times policy, a national cancer control plan and benchmarking against international performance.

If value for money from the biennial health check cannot be demonstrated, funds supporting it should be reinvested in more effective means of primary prevention

In a time of on-going fiscal restraint, most countries have reduced spending on preventive health care. The latest OECD figures reveal successive falls in average spending on prevention of 1.5 – 1.7% per year, between 2009 and 2011. It is vital to ensure, therefore, that spending on prevention delivers value for money. The Czech Republic's offer of a general medical screening every two years to the adult population is a prominent element of the health system. Its cost-effectiveness, however, has never been evaluated. Using the international systematic review and meta-analysis evidence presented earlier as a guide, cost-effectiveness is likely to be very poor.

As a first step, therefore, the cost-effectiveness of population-level screening of blood pressure, cholesterol and other cardiovascular risk factors should be independently evaluated within the Czech context. Of note, the Czech Republic lacks a national health technology assessment (HTA) agency and so has relatively little experience or few established procedures for conducting such cost-effectiveness assessments. It is likely, then, that a University or private contractor will be needed to carry out such an evaluation. Nevertheless, the lack of a national HTA institute stands in marked contrast to most other OECD countries and renewed effort is needed to consider how one could be established, especially given current fiscal constraints.

If the evaluation demonstrates poor cost-effectiveness, consideration should be given to abandoning the programme and reinvesting the savings made in other more effective means of primary prevention. New initiatives focussing on reducing the prevalence of smoking, excess weight and harmful alcohol consumption, and initiatives focussed early in the life course on children, adolescents and families are especially important in the Czech context.

Extensive analysis is available to underpin policy choices in this area. A micro-simulation model has been developed jointly by the OECD and the WHO, to estimate the long-term population-level effects and costs of preventive interventions to tackle chronic diseases. Modelling across several countries found that health information and communication strategies that improve population awareness about the benefits of healthy eating and physical activity are cost-effective and able to generate substantial health gains. Fiscal measures that increase the price of unhealthy food content or reduce the cost of healthy foods rich in fibre also emerged as cost-effective. Finally, regulatory measures that improve nutritional information or restrict

the marketing of unhealthy foods to children were also found to entirely or largely pay for themselves, through future reductions of health-care expenditures (Cecchini et al., 2010).

Recent work that develops this modelling, as well as surveys of international experience, have demonstrated that taxes on health-related commodities can be a powerful tool for health promotion (Sassi et al., 2013). The review concluded that arguments in support of taxes on tobacco products and alcoholic beverages is particularly strong, although is less clear for foods (where their value is highly dependent on their design and on the context in which they are applied).

A renewed focus on secondary prevention is urgently needed

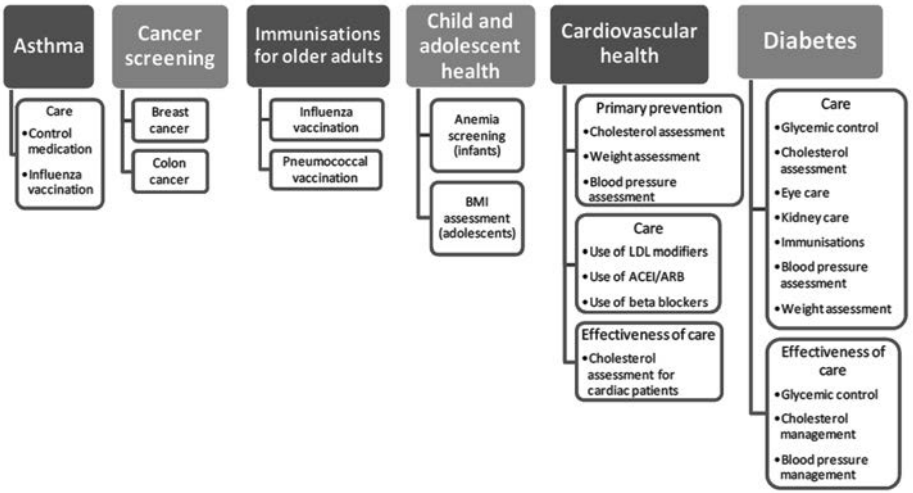
Whilst the Czech Republic has made great strides in reducing mortality from IHD, CVD and cancer over the last two decades, mortality rates for these conditions are amongst the highest in the OECD. Renewed efforts are needed, therefore, to reduce the risks of death or disability through secondary prevention, to complement primary preventive efforts. Effective secondary prevention is particularly important in the case of IHD, CVD and diabetes (and would consist of the reduction of excessive weight, blood pressure, blood sugar and cholesterol levels, as well as tackling smoking and harmful alcohol consumption).

Currently, there is a dearth of information on the quality of secondary prevention in the Czech Republic. Given high rates of cardiovascular mortality and rates of admission to hospital for diabetes relative to other OECD countries, it is almost certain that there is substantial room for improvement here. A national strategy around secondary prevention, focussed on cardiovascular disease and diabetes is recommended. As part of this, the government should consider whether it wishes to commit itself to a high level target in this area. Norway provides an interesting example – in response to the 2013 World Health Assembly, it was the first country in the world to commit to a 25% reduction in premature mortality from non-communicable diseases by 2025. To support this ambition, Norway recently launched a national non-communicable diseases strategy.

Another interesting example of addressing the challenge of chronic diseases comes from Israel. There, the Quality Indicators in Community Healthcare (QICH) programme covers six areas of primary care activity (as shown in Figure 3.8) and reports performance at individual provider-level, after adjustment for health need and sociodemographic factors. Managers report that the data fed back to them is instrumental in quality improvement work; one of Israel's health funds, Maccabi, reports that amongst diabetic patients between 2004 and 2009, poor HbA1c control fell by 29% and

adequate cholesterol control increased by 96.2%, for example (OECD, 2012). Of note, QICH is neither mandated nor reliant on financial incentives; instead, its success is thought to be due to its robust scientific basis, consensual development of the indicator set involving GP and health insurance companies early on, clear patient-oriented objectives and, crucially, systematic and continuous feed-back of comparative data to both professionals and the public.

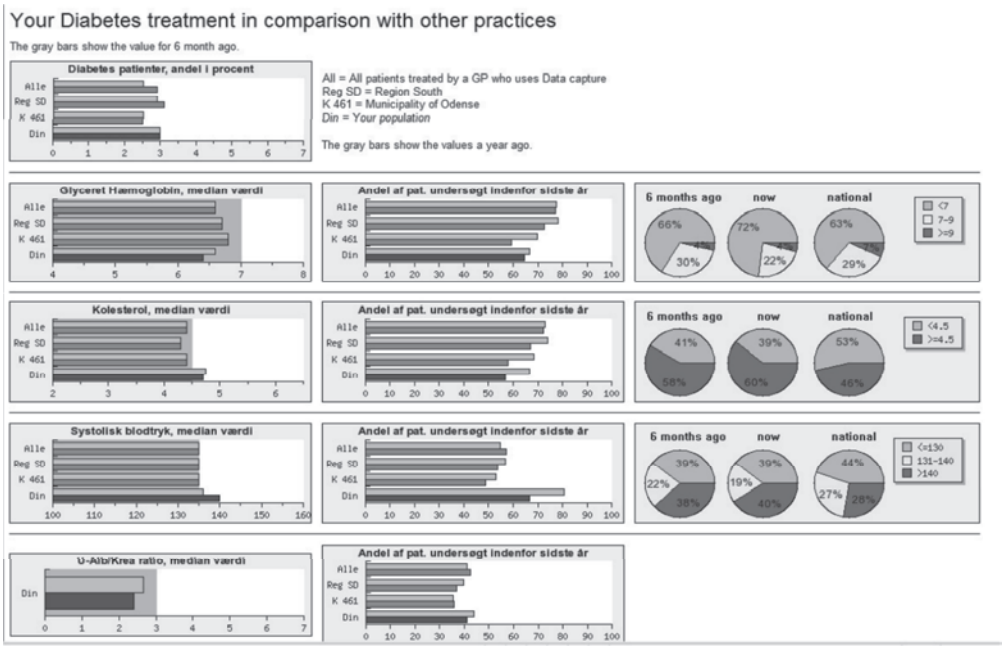
Figure 3.8. Structure of the Quality Indicators in Community Healthcare (QICH) programme, Israel



Source: OECD (2012), *OECD Reviews of Health Care Quality: Israel 2012: Raising Standards*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264029941-en.

In a similar vein, Denmark has developed a system of automatic data capture from primary care records, which allows GPs to access quality reports from their own practice for over thirty areas. These include management of chronic diseases such as depression, COPD, diabetes or heart failure; routine care such as childhood vaccination and provision of contraception and aspects of effective practice administration. As well as being able to identify individual patients that are sub-optimally treated, the system allows them to benchmark their practice against other practices at municipal, regional, and national levels (see Figure 3.9 for an example relating to diabetes management). Patients can also monitor their own clinical data. Analyses using the data collected have reported significant improvements in the proportion of diabetics on appropriate anti-diabetic, anti-hypertensive and lipid-lowering medications (OECD, 2013a).

Figure 3.9. DAMD output allowing GPs to compare the quality of their practice with peers



Glossary: Median værdi: median value; *andel af pat. undersøgt indenfor sidste år*: proportion of patients with an annual check in the last 15 months.

Source: Danish Quality Unit of General Practice, www.dak-e.dk.

Strengthening primary care, including developing new primary care roles, will be central to achieving all of these objectives

In theory, primary and secondary prevention can be managed either through hospital outpatient clinics or through primary care, but given the trend to shift care outside the hospital setting and the need to situate secondary preventive efforts in the context of a patient's complete medical record and medication history, it seems more sensible that the task should be taken up by primary care. The role of primary care is evolving rapidly in the Czech Republic. In particular, the government is encouraging patients to reduce their reliance on hospital specialists and consult their GP more frequently instead. Clarifying the roles and responsibilities of primary care in the co-ordination and provision of preventive care should be a priority therefore.

There is potential for primary care in the Czech Republic to play a more proactive role in primary and secondary prevention, and the management of chronic disease, mental illness and multi-morbidities. The "disease management programmes" instituted in Germany and other countries may be a good model to follow here. In the model implemented in Germany, national and/or regional governments provide additional funds to health insurers to provide an enhanced level of care to people with complex needs. The programmes are voluntary (for both patients and providers), however once a patient is signed up, treatment must be provided in accordance with detailed clinical guidelines and following an individualised treatment plan, designed by the patient and her doctor. All patients have a named primary care physician, who plays a central role in co-ordinating and delivering care (Nagel, 2008).

The Czech Republic's wider primary care workforce – that is nurses and allied health personnel – also have the potential for an increased role, especially in managing patients with chronic disease. There is extensive evidence around the benefits of expanding the role of primary care nurses in the management of long-term conditions, including primary and secondary prevention. With appropriate training and on-going support, nurses have been shown to deliver many primary care functions (particularly around the management and co-ordination of one or more long-term conditions) as effectively as physicians, and typically at lower cost and with higher levels of patient satisfaction (Lowery et al., 2011). The models of nurse-provided services in prevention, rehabilitation and care for some chronic conditions seen in England, Estonia, France, Sweden, Denmark and parts of Spain.

Community pharmacists offer another potential development. In Norway, for example, pharmacists commonly offer cardiovascular health checks in a programme welcomed by the Norwegian Diabetes Association and other patient groups). Such changes would need to be accompanied by adequate training and governance structures, to assure the quality of services provided by nurses and other new groups.

The data infrastructure underpinning screening and preventive care should also be improved

Chapter 2 examines in detail how the information infrastructure underpinning health care in the Czech Republic could be modernised to better support quality improvement. Many of the recommendations made in that chapter are directly applicable to screening and preventive health care. In particular, an information infrastructure capable of monitoring the extent to which compliance with national guidelines, such as those published by

the Purkinje Medical Society, is achieved will be vital to monitor and improve the quality of preventive care in the Czech Republic.

As well as doing more with the data that currently exists, the information infrastructure should be extended to include clinical outcomes. Currently, only health care activities are documented, for reimbursement purposes. Extending this to include blood pressure, blood sugar and other clinical measurements will allow more informative assessment of the success of secondary preventive efforts. Responsibility for this best falls to the Institute of Health Information and Statistics and the various quality registers that they manage. Discussions should take place around developing these registers to include more clinical outcomes; there is also the urgent need to develop a national register for type 2 diabetes, which does not currently exist. Improved data collection and greater use of quality indicators in primary care will also support progress towards the goals outlined.

There is also scope to improve the data infrastructure surrounding cancer care. Although the CNCR publishes useful epidemiological data, including some assessment of the impact of screening through monitoring the clinical stage at which cancer is diagnosed, a much richer assessment of the screening programmes could be achieved if screening data were to be linked to clinical outcome data held by CNCR. The proportion of incident cancers who had undergone recent screening, or who had never been screened, could be calculated for example.

The Czech Republic's health insurance funds should work together to deliver preventive health care more effectively

The seven health insurance agencies have a key role to play in improving data infrastructure, since it is they who have the most detailed knowledge of individual patients' diagnoses, health needs and health care activities. In earlier years, some insurers gave doctors feedback on compliance with guidelines around diabetes management. Anecdotally, this was reported to have been effective in improving the quality of care, but was discontinued for lack of funding. Resources should be found to re-start this programme and institutionalise it across all insurers and for a wider set of chronic conditions. If a Czech initiative similar to the Danish DAK-E or Israeli QICH programmes outlined earlier – capable of benchmarking, national and internal comparison – is to develop, joint working across the insurers will be vital.

It is also in the insurers' interests to invest in a cost-effectiveness assessment of the general health check and, more broadly, to support more formal development of health technology assessment in the Czech Republic,

at a national level. Insurers should co-ordinate and pool their resources in this regard, to avoid inefficient duplication of cost-effectiveness assessments and stretching the resources of the smaller insurance funds too far. Clarification and development of the insurers' role will also be necessary to underpin many of the other recommendations in this chapter. They should take a lead role in designing and delivering health promotion programmes referred to earlier, with the aim of reducing the prevalence of risk factors such as smoking, obesity and alcohol abuse amongst adults and children. As noted, cost-effective models of delivery may include one-to-one counselling, using a full range of trained personnel (rather than solely doctors), with special attention to disadvantaged groups. Insurers should also be proactive in ensuring that the recently launched programme sending personalised invitations to people who have never undergone screening for cancer is a success. This may involve giving GPs detailed feedback, for example, on the success of the initiative, so that they provide additional support to individuals who do not participate.

3.6. Conclusion

The Czech Republic has a variety of preventive health care systems in place, focussed around cancer screening (for breast, cervical and colorectal cancer) and a more general two year health check for all individuals, which largely centred on cardiovascular risk. For both breast and cervical cancer screening, uptake in the Czech Republic is significantly below OECD averages (comparable data for colorectal cancer screening is not available). This is in large part due to the fact that individuals are not invited to attend for screening, but must rely on a reminder from their GP (or on their own motivation) to attend. The effect of these low screening rates is seen in the modest impact that these screening programmes have had in diagnosing cancers at an earlier and more easily treatable stage, with the exception of breast cancer.

The biennial universal general health check is unlikely to offer value for money, according to substantial international evidence. Given increasing rates of smoking, obesity and alcohol abuse, including among children, more effective means of primary prevention of ill health must be found. Additionally, although guidelines for secondary prevention of cardiovascular risk exist, nothing is known about adherence to them.

A priority therefore must be to develop the information infrastructure underpinning preventive health care. In terms of preventive interventions for cancer, linking screening data to clinical outcomes held in the national cancer registers is an obvious necessary first step. Developing more disease-based registers to monitor the quality and outcomes of secondary

prevention is also needed. At the same time, the low rates of uptake of some preventive interventions point to the need to widen access and incentivise both professionals and the public to engage in preventive health care more actively. If value for money for the universal general health check cannot be demonstrated, consideration should be given to dropping it and redirecting this investment to reducing the prevalence of smoking, excess weight and harmful alcohol consumption. Initiatives focussed early in the life course on children, adolescents and families are especially important in the Czech context.

Notes

1. Five-year relative survival is the percentage of patients with a given cancer that are alive five years after diagnosis, divided by the percentage of the general population of corresponding sex and age that are alive after five years.

2. Case-fatality rate is the percentage of deaths within a population of "cases" (people with a given medical condition), over the natural course of that condition.

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Chapter 4

Diabetes care in the Czech Republic

The Czech Republic has in place a comprehensive care approach for diabetes, which covers primary prevention, screening and diagnosis, management and treatment, and response to complications, backed up by a national diabetes plan, and a range of clinical guidelines. The measures that the Czech Republic has been taking appear to have delivered some positive improvements, as complication rates for diabetes have dropped in some areas. Nonetheless, in the face of a rising prevalence of diabetes, strengthening of care approaches is needed, particularly around prevention. If implemented effectively, efforts to tackle risk factors for diabetes, notably obesity, can be cost-saving in the long run. To respond to this growing burden, and to provide higher quality care for current diabetes patients, some shifts in the organisation of care will be needed: GPs should take on a greater role in managing diabetes; well co-ordinated and patient-centred care should be prioritised; and patient education and self-management should be promoted.

4.1. Introduction

In the Czech Republic, as in many OECD countries, diabetes is a leading cause of morbidity, is associated with significant co-morbidities, and with considerable health expenditure. Prevalence of all diabetes (type 1 and type 2) in the Czech Republic is an estimated 8% (non-standardised estimate), higher than the OECD average of in 2013 of 6.9% (OECD, 2013). The burden of diabetes is rising in the Czech Republic, as elsewhere in the OECD, a trend that is expected to continue in line with increasing rates of obesity, ageing populations, and changing lifestyles. The Czech Republic is also more significantly affected by rates of obesity and smoking than the average OECD country, and has a larger population over the age of 65 than most other OECD countries (OECD, 2013).

Some prevention efforts are in place, including targeted primary prevention campaigns in schools and workplaces. At present detection of diabetes in the Czech Republic is good, with the rate of undetected diabetes below the European average (IDF, 2013). A good care pathway for patients with diabetes has been established by the clinical guidelines of the Czech Diabetes Society, wherein GPs treat less complex cases and diabetologists treat patients with more acute needs. There are some positive signs of improvement, including falls in the rate of some complications, notably diabetic foot, reduced renal function, and micro albuminuria.

Although these improvements are encouraging, there are other suggestions that there is some need for improvement. Risk factors for diabetes and pre diabetes are high, with high prevalence of hypertension, high BMI and raised blood pressure. This chapter considers ways that primary and secondary prevention for diabetes can be strengthened to help push back against the growing burden of diabetes.

The rising prevalence of diabetes will put increased pressure on health care providers, and there are some suggestions that management of diabetes is not as good as it could be. A relatively high rate of avoidable admissions for diabetes – 221 hospitalisations per 100 000 population for diabetes in 2011, compared to the OECD average of 164 per 100 000 population – suggests, that management of diabetes in the community could be improved. It is likely that GPs will have to take on a greater role in managing diabetes, including managing more complex cases than they are perhaps used to. This chapter suggests a number of ways of shifting the incentive structure to encourage GPs to play a bigger part in caring for patients with diabetes, as well as promoting high-quality care. More integrated, patient-centred care is a priority for the treatment of diabetes, and the Czech Republic should take steps towards securing this. A stronger data infrastructure, facilitating data sharing across care settings, monitoring of quality, and benchmarking across providers

would be of great help in moving this process forward. The role of patients in their own care will also need to increase, and they should be supported by health care providers, but also by patient groups and advocates.

Box 4.1. What is high-quality diabetes care?

What is diabetes?

Diabetes is a condition where the concentration of glucose in the bloodstream is too high. Over time, This can cause serious complications, including blindness, heart attacks, stroke, kidney failure and lower extremity amputations. Once developed, diabetes is lifelong and its chronicity, complexity and rising prevalence make diabetes a challenge for any health care system and a key marker of health care quality.

There are two main types of diabetes. In type 1 diabetes, the insulin necessary to allow glucose to leave the bloodstream and enter cells is not produced because insulin-producing cells in the pancreas have been destroyed. In type 2 diabetes (formerly called non-insulin dependent diabetes or adult-onset diabetes), the body either does not produce enough insulin, or the insulin it produces is ineffective (insulin resistance). Type 2 diabetes accounts for at least 90% of all cases of diabetes. In addition, high blood sugar levels can also be observed in pregnant women without a history of diabetes. The prevalence of gestational diabetes mellitus (GDM) differs from population to population: for instance, Lawrence et al. (2008) estimates that GDM occurs in 4-14% of all pregnancies in the United States. In Israel, a population-based study in the Maccabi health fund showed that overall, prevalence of GDM is about 6% (Chodick et al., 2010). Although diabetes cannot be cured, it can generally be managed successfully.

What constitutes good quality care?

Diabetes is a complex, chronic condition and reaching a shared understanding of the condition between the patient and their clinical team is critical. The cornerstone of management is a healthy lifestyle around diet, physical activity and non-smoking, with some patients also taking medication or injecting insulin. High-quality care, therefore, consists of regular reviews and assessments, tailored patient education; lifestyle management (particularly around a good diet, taking exercise and stopping smoking); monitoring and achieving blood glucose control (including self-monitoring as appropriate); monitoring and achieving blood pressure and lipids control (and estimating cardiovascular risk); antithrombotic therapy in particular patients and avoiding kidney, eye and nerve damage in all patients. High-quality care also involves identifying and managing depression and other complications, referring as appropriate to specialist care. International experience tends to show that quality initiatives have achieved substantial improvements in the processes of care (such as checking blood tests at regular intervals), but that success has been much more variable in terms of clinical outcomes (such as achieving blood glucose control). Furthermore, quality initiatives have not always benefitted particular groups such as the elderly or those of low socioeconomic position, and have tended to neglect patient-reported assessments of quality, in favour of clinical measures and outcomes.

The first part of this chapter describes the prevalence of diabetes in the Czech Republic, followed by Section 4.3 which identifies some of the key drivers of the diabetes burden, suggesting ways to scale-up primary and secondary prevention for diabetes. Section 4.4 examines available indicators of quality of care for diabetes, suggesting that there have been some improvements but also some important shortcomings. The last section focuses on ways in which care delivery can be strengthened to improve outcomes, and to respond to the growing burden of diabetes, with a series of recommendations on the need for GPs to play a greater role, promoting co-ordination between primary and specialist care, and increasing the involvement of patients with patient education and self-management practices.

Box 4.2. International estimates of the prevalence of diabetes

More than 366 million people worldwide have diabetes (International Diabetes Foundation, 2011). The World Health Organization refers to this as a "global epidemic", predicting diabetes to become the seventh leading global cause of death by 2030. If not managed well, type 2 diabetes doubles the risk of heart attacks and strokes and can reduce life expectancy by eight to ten years (Franco et al., 2007). The Institute for Health Metrics and Evaluation estimates that diabetes accounts for 1.89% of all DALYs globally.

The International Diabetes Federation estimate that in industrialised countries health care costs in people with diabetes are doubled and that, globally, diabetes caused at least USD 465 billion in health care expenditures in 2011. In OECD, the cost of diabetes was estimated to USD 345 billion (IDF, 2009). Beyond health care costs, diabetes also represents significant indirect cost to the economy due to loss of productivity and greater absenteeism, as well as non-financial costs to patients and their carers.

The St Vincent Declaration (1989) points to important human intangible costs caused by the disease. Diabetes requires a lifelong daily management of the disease, important changes in lifestyles and diets, daily medication (with potential side effects) and complications which can have important bearings on the well-being and mental health of individual and their families [Department of Health (England), 2001].

4.2. The prevalence of diabetes and metabolic syndrome are a cause for concern

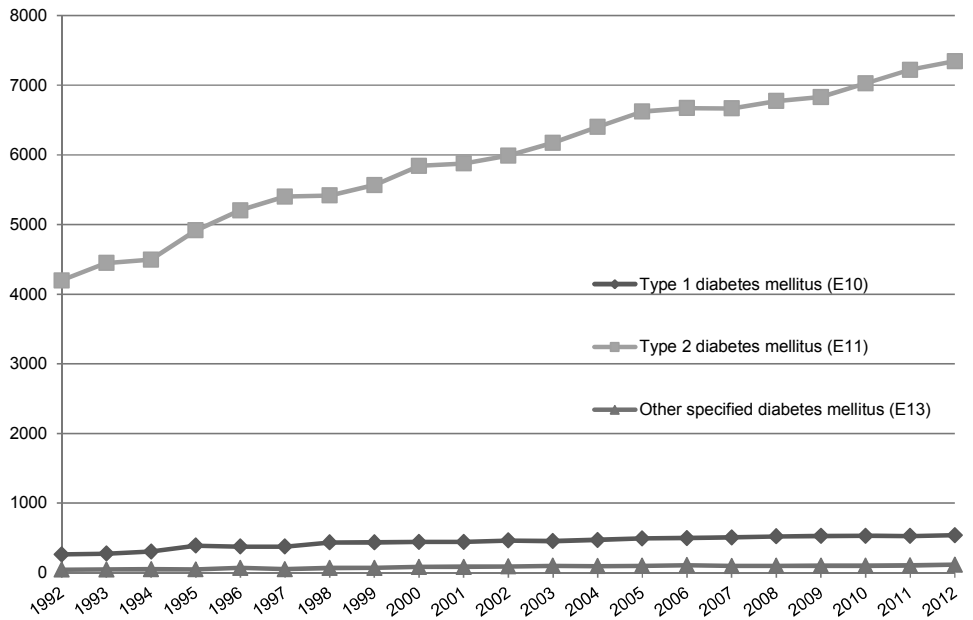
The rate of diabetes is rising in the Czech Republic

The prevalence of diabetes – both type 1 and type 2 – has been rising steadily over the last decade in the Czech Republic as it has been in other OECD countries. Well-documented prevalence of all diabetes (type 1 and type 2) was about 8% in 2012 (Institute of Health Information and Statistics of the Czech Republic, 2012 (not-standardised rate) in the Czech Republic;

the OECD average in 2011 was 6.9% (OECD, 2013). Whist the majority of the rising burden of diabetes in the Czech Republic is from type 2 diabetes, the prevalence of type 1 diabetes has also been rising slightly over the last ten years (see Figure 4.1).

Figure 4.1. The prevalence of diabetes in the Czech Republic is rising

Prevalence of diabetes mellitus by type per 100 000 inhabitants

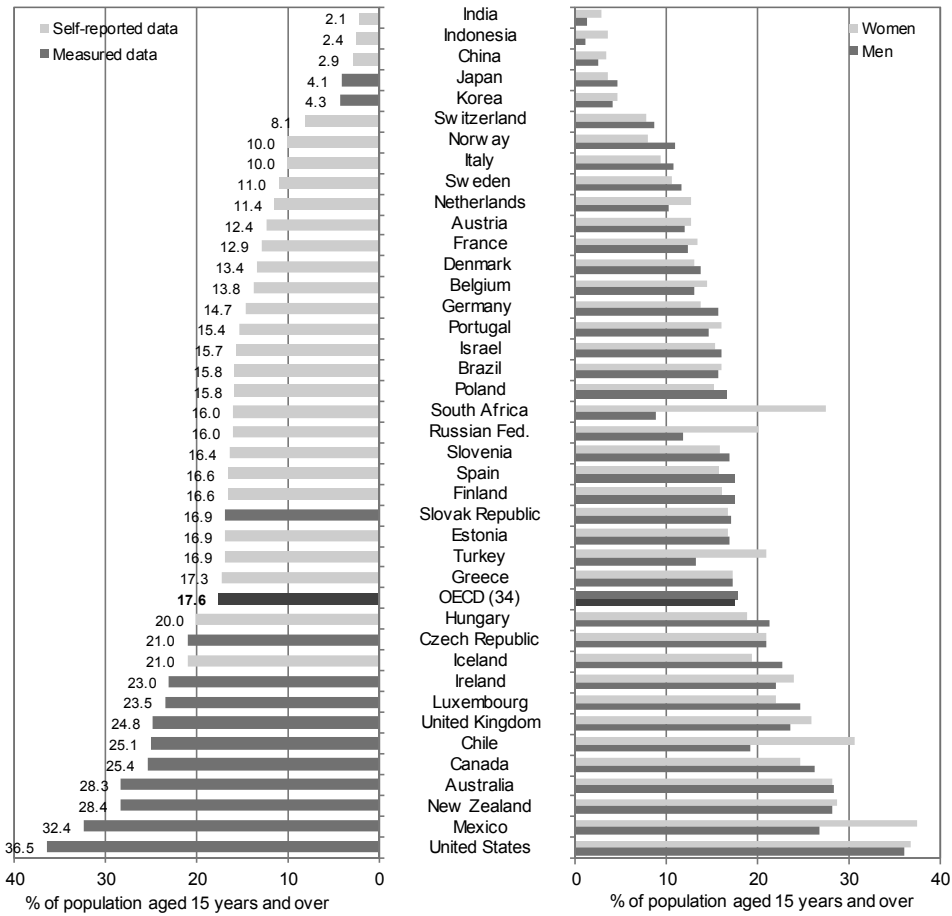


Source: Institute of Health Information and Statistics of the Czech Republic (2012), *Diabetes Care 2012*, www.uzis.cz.

Characteristics of the population diagnosed with diabetes and features of metabolic syndrome (e.g. sex, age, socio-economic status) are available, but are not at present fully exploited for analysis. However, similarly to other OECD countries, diabetes prevalence can be expected to rise in the Czech Republic, related to an ageing population, and key lifestyle factors, particularly obesity. The proportion of the Czech population over 65 is, notably, higher than the OECD average of 27% at 31% of the population (OECD, 2013). If more granular data on diabetes broken down by age was collected it could be used to deepen understanding of the diabetes trend in the Czech Republic.

As elsewhere in the OECD, obesity rates in the Czech Republic are rising (OECD, 2013; see Figure 4.2). Among adults, obesity in the Czech Republic is higher than the OECD average, and has also risen faster since 2000 than the average increase across OECD countries. Mean BMI in the Czech Republic was an estimated 28.5 (± 4.7 kg/m2) for men, and 27.1 (± 6.0 kg/m2) for women (Cífková et al., 2011); a BMI above 25 is generally considered to be overweight, with above 30 considered "obese" (WHO, 2006). In the same population study by Cífková et al. (2011), obesity was found in 32.4% of males and 28.3% females.

Figure 4.2. Obesity rates amongst adults in OECD countries, 2011 (or nearest year)



Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en; national sources for non-OECD countries.

The prevalence of risk factors for type 2 diabetes and separate features of metabolic syndrome, are worrying. In addition to raised BMI, Cífková et al. (2011) found a high prevalence of hypertension: 47.8% of the sample for males and 36.6% of females. Mean total cholesterol was found to be nearly identical in males (5.29 ± 1.10 mmol/l) and females (5.29 ± 1.04 mmol/l), in both cases a "raised" cholesterol level, being above 5.0 mmol/l. In addition, smoking rates are well above the OECD average, and the only OECD country for which smoking rates are rising (OECD, 2013).

4.3. Scaling-up primary and secondary prevention for diabetes

Primary prevention to tackle diabetes risk factors should be scaled up

The primary prevention approach to diabetes is at early stages in the Czech Republic. Given the scale of the obesity challenge in the Czech Republic, and high rates of risk factors such as raised blood pressure and cholesterol, those prevention efforts for diabetes that have been started do not match the scale of the problem. Primary prevention activities should be scaled up to help prevent diabetes.

The Czech Diabetes Society and Czech Society of General Practitioners have put in place a National Diabetes Program, accepted by the Ministry of Health, which aims to support the prevention, early diagnosis, and treatment of diabetes and its associated co-morbidities, and includes some attention to primary prevention. In particular, attention is drawn towards the need for nationwide attention to preventing obesity. Other programs include "Healthy City", "Healthy School", and "Healthy Company". These are targeted educational programmes promoting healthy lifestyle choices and creation of healthy environment.

The OECD (Sassi, 2010) has found that a number of interventions targeted at reducing obesity are effective, a number of which are also cost-effective. Specifically, health education and promotion, regulation and fiscal measures, and counselling in primary care have favourable cost-effectiveness ratios in terms of reducing the health impacts of obesity (Sassi, 2010). The Czech Republic can draw on such evidence in exploring options for the necessary expansion of primary prevention efforts. For example, mass media campaigns, targeted programmes in schools (Health School), and targeted programmes in workplaces (Healthy Company) are already in place, but may not be equally effective or cost-effective. While usually more costly than mass media campaigns workplace interventions appear to be more effective at reducing obesity and bringing health gains, presenting a favourable cost-effectiveness ratio overall. The long-term picture is also worth considering. In this model (Sassi, 2010) interventions in schools did

not start to present a favourable cost-effectiveness ratio until 80 years after initial implementation, when health benefits start to materialise. It is also important to note that not all interventions are equal in their potential to reduce obesity and bring health gains. Effective design of the intervention, and some monitoring of uptake and impact, will likely help guide future policy making and maximise efficacy.

Box 4.3. The National Diabetes Programme 2012-2022: prevention strategy

Improving prevention of type 2 diabetes demands a nationwide initiative that should be given intensive attention from the authorities, the health service and health professionals. The issue of prevention of type 2 diabetes type overlaps with the prevention of cardiovascular diseases and cancer. A nationwide program targeted at reducing risk factors for these diseases, which include obesity, low physical activity, overeating and improper diet, has been approved by the Ministry of Health and its implementation has been started. The tackling or risk factors can be approached through legislative changes, e.g. the introduction of the obligation to visit a doctor for preventive inspection, and possible sanctions for the patient for their non-use of obligatory monitoring of consumption, restrictions on the advertising, promoting awareness, media campaigns, education in schools, control free sale of food products in schools, infrastructure-cycling, public sports, etc. The initiative is in line with public health strategy for 2011-16.

Source: Czech Diabetes Society (2012), *The National Diabetes Programme 2012-2022*, available at: www.diab.cz/narodni-diabetologicky-program, accessed 2 January 2014.

In addition to health promotion and educational efforts already in place in part in the Czech Republic, other interventions to help reduce obesity should be given consideration. Whilst a politically sensitive topic, monitoring and fiscal regulation appear to have a significant impact upon health outcomes, and highly favourable cost-efficiency ratios (Sassi, 2010). The possibility of more regulated food labelling, restrictions on advertising, and control over food sales in school have already been suggested as part of the National Diabetes Programme 2012-2022, and would appear to be in line with the Public Health Strategy 2011-16.

A wider range of stakeholders could be included in primary prevention efforts

In addition to interventions by central government, there is a potential for a wider range of stakeholders to become more actively involved in primary prevention efforts. This includes stakeholders in the health system – GPs, insurance funds – as well as outside, notably employers. The OECD (Sassi, 2010) found that weight loss interventions in primary care – physician

counselling of individuals at risk – was expensive, but highly effective. GPs should be playing a bigger role in prevention and chronic disease management as a fundamental part of their role as primary care providers (see Chapter 3, Section 3.5; Chapter 4, Sections 4.3, 4.5), but given the weak tradition of primary care-delivered prevention in the Czech Republic there is scope to explore ways to encourage GPs to take a more active role in weight loss management. An increase in the fee-for-service (FFS) schedule for certain prevention activities delivered by GPs for targeted patient groups, e.g. those with diabetes risk factors, could be effective.

Insurance funds likely have a bigger role to play in promoting primary prevention, particularly around health promotion, diet, and reducing obesity. Higher rates of obesity amongst health insurance customers will result in higher costs to the insurance fund in the medium- to long-term. Some health insurers in the Czech Republic are already carrying out more proactive preventative work, and targeting interventions to patient profiles, and this should become more widespread. Investment in appropriate prevention efforts could therefore be cost-saving for insurance funds over time, and has the potential to offer insurance funds proposing a complete prevention or wellbeing package a competitive advantage in the relatively tightly controlled insurance market. It may be in the interest of insurance funds to offer weight loss programmes, for example counselling, nutrition advice, and access to sport and exercise facilities, but there is likely first a need to perform cost-evaluations of those programmes already in place, to promote the programmes that represent the best value-for-money and best outcomes.

There have also been some international examples of the use of financial incentives by health insurance funds for participation in weight loss programmes, for weight loss itself, or for risk reduction across a range of indicators. For example, the State of Alabama offers a USD 25 to state employees who participate in a wellness programme or who show commitment to reducing their levels of risk with relation to BMI, blood pressure cholesterol and glucose. A similar approach could be adopted by Czech insurance funds. In Germany Statutory Health Insurance Funds have been allowed since 2004 to offer financial incentives in the form of "bonuses" to participants in certain quality assured primary prevention programmes, either in exchange for cash bonuses or lower insurance contributions or co-payments (Stock et al., 2010). Some trials appear to show the positive impacts on behaviour change and weight loss of financial incentives, with evidence of weight loss over the (usually relatively short) programme time (Paul-Ebhohimehen and Avenell, 2008; Volpp, 2008), although the long-term efficacy of such programmes is less well understood (Jeffrey, 2012). There are some incentives given by insurance funds for Czech patients who lose weight, for example if a patient achieves a

reasonable weight reduction (3-5 kg) they can be compensated with extra "points" which can be used for vaccinations, inscription in fitness and wellness programmes, and similar services.

Employers are a further stakeholder whose inclusion in primary prevention efforts could be valuable. There is a cost-incentive for employers to invest in reducing the health risks of their employees: in supporting better health for their employees, employers have the potential to see gains in improved productivity, better staff morale and retention, and reduced sickness absence costs [Cross-Government Obesity Unit (England), Department of Health and Department of Children, Schools and Families (England), 2008]. The Czech Republic already has some programmes in place in the workplace, notably "Healthy Company", which is carried out by public institutions to provide education about healthy lifestyle choices, but employers could take a more active role. This could include efforts to make health lifestyle choices easier for staff, for example making health options available in staff canteens, providing fitness facilities, providing fruit, or more direct incentives to lose weight or sign up to exercise programmes. In England as part of a drive to improve health through workplace interventions two pilot weight loss programmes, "Cold Turkey" and "Biggest Loser", offered prizes for those employees with the greatest weight loss over a set period [Cross-Government Obesity Unit (England), Department of Health and Department of Children, Schools and Families (England), 2008].

Screening and diagnosis of diabetes appears to be good compared to international estimates

The rate of undetected diabetes in Czech Republic, according an epidemiological survey (Cífková et al., 2010), is at approximately 25%. This rate is relatively good when compared with international averages: the International Diabetes Federation estimated that in middle- and high-income European countries undiagnosed diabetes prevalence was 35-36% (IDF, 2013). Early detection of diabetes can allow better management of the symptoms, and fewer complications, and is a priority for good diabetes care.

Screening programmes for diabetes do appear to be in place, and if functioning as intended ought to be comprehensive for effective early detection of diabetes. However, there appears to be some gap between intended screening coverage and reality. This low uptake of the health check is likely because many people do not visit their GP regularly, or seek preventative checks.

Box 4.4. Screening for diabetes in the Czech Republic

Bi-Annual Health Check and Gestational Diabetes Screening

At present, diabetes screening should be carried out by a GP once every other year for the population over 40 at a health check. In persons with higher risk of diabetes (e.g. family background, obesity or increased waist circumference, hypertension, presence of impaired glucose intolerance in medical history) screening should be carried out every year.

Identifying gestational diabetes at early stages of pregnancy can reduce the risks of prenatal death, neonatal complications, foetal overgrowth, caesarean delivery, and hypertensive disorders. Pre-natal consultations could suitably identify women at risk for screening, as risk profiles for gestational diabetes (overweight or obesity, previous or familial history of impaired glucose fasting or type 2 diabetes) have been well defined (Ducarme et al., 2008). Screening of gestational diabetes should be performed in all at-risk pregnant women in the Czech Republic following guidelines from the Czech Diabetes Society; women over 25, with a BMI above 25kg/m2, with diabetes in their family, or with complications in their obstetric history should be screened for gestational diabetes, which is in line with the experience of other OECD countries and research literature.

Source: Ducarme, G., C. Muratorio and D. Luton (2008), "Contre le dépistage systématique du diabète gestationnel", *Gynécologie Obstétrique et Fertilité,* Vol. 36, No. 5.

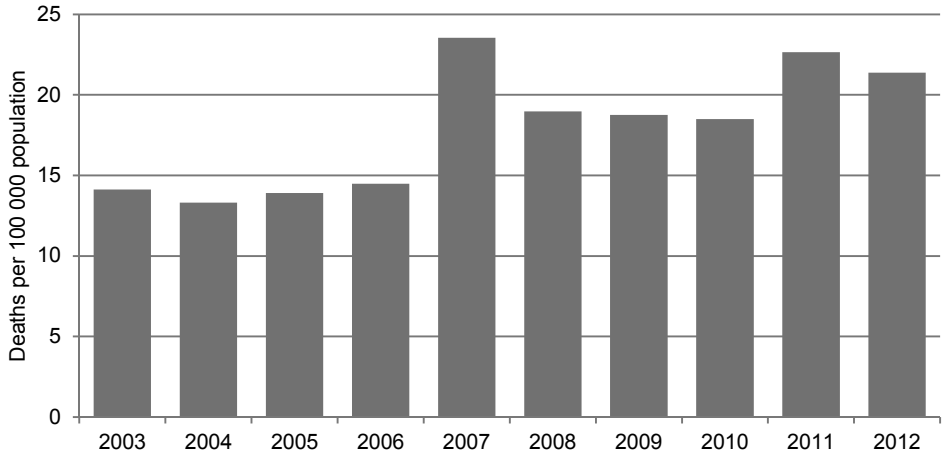
Instead of attempting to increase the uptake of health checks or diabetes screening for the whole population above 40, which may not demonstrate cost-effectiveness (see Chapter 3; Simmons et al., 2010), more should be done to target screening to at-risk patients, and improve population awareness of symptoms to promote self-referral for screening (either by a GP or in a pharmacy). Glycaemia self-monitoring has been available in pharmacies since 2011, is a common procedure for pharmacists (carried out using a glucometer), and has been recommended as common practice by the Czech Chamber of Pharmacists. Patients with a blood glucose level above 7.5 mmol/l, or fasting patients with a blood glucose level above 5.5 mmol/l should then be followed by with a GP or diabetologist. At-risk patients seen in other areas of the health service – patients after acute coronary events, patients after a stroke, patients seen for gestational diabetes screening during pregnancy – should also be followed-up actively, as per the recommendation of the National Diabetes Programme 2012-2022.

4.4. Despite some improvement, there are still shortcomings in the outcomes of diabetes

There are some signs of improvement in the quality of diabetes care, although rates of complications remain too high

The total mortality rate of diabetic patients has remained fairly steady across the last decade (see Figure 4.3) despite the rising prevalence, which is a positive sign, although mortality amongst patients with detected antidiabetic therapy does still appear to be higher in some age groups than for the general population (General Health Insurance Company, 2006).

Figure 4.3. Mortality rate from diabetes, 2003-12



Source: Institute of Health Information and Statistics of the Czech Republic (2012), *Mortality 2012,* www.uzis.cz.

In addition, the relative prevalence of macrovascular complications of diabetes is falling; prevalence of chronic heart disease amongst patients with type 2 diabetes fell from over 40% in 2001 to below 30% in 2008 (Czech Diabetes Society, 2012).

Whilst the absolute rate of microvascular complications of diabetes is rising, prevalence is stable or falling. It is reasonable to assume that at least some of the increase absolute numbers of complication is associated with the falling mortality rate for patients with diabetes. There has been a slight reduction of the prevalence of diabetic foot syndrome.

The incidence of diabetic retinopathy is still increasing. In 2009, in total 90 586 diabetes patients with diabetic retinopathy were registered in the Czech Republic (11.7 %) (Czech Diabetes Society, 2012). The proliferative form of diabetic retinopathy (PDR) has been detected in 21 505 diabetic patients which is almost 3% of the total number of patients with diabetes.

The number of patients with established reduction in renal function or microalbuminuria is alarming (although microalbuminuria had been examined only in 10-12% of all patients) (Czech Diabetes Society, 2012). Diabetic kidney disease and some degree of renal impairment can be found in about a half of diabetic patients. The presence of kidney disease increases the risk of cardiovascular complications and gradual progression to renal insufficiency. According to likely incomplete statistic data, diabetic kidney disease was found in more than 97 thousand of diabetic patients (11.5%) in the Czech Republic in 2012. 36% of them was in various stages of chronic renal insufficiency. In the same year, there were 41% of diabetic patients of all patients enrolled to regular dialysis program in the Czech Republic.

There are indications that management of diabetes is not good enough

There are a number of indications that the management of diabetes in the Czech Republic could be improved. Regular screening for complications associated with diabetes, and to monitor treatment, does not appear to be adequately in place across the country. Glycated hemoglobin (HbA1c) is the basic indicator for successful treatment of hyperglycaemia, which following Czech Diabetes Association's clinical guidelines should be examined two to four times per year. In recent years, an important body of literature has built up around the importance of control of blood glucose levels to reduce the risk of cardiovascular disease and microvascular complications. Whilst an improvement was seen between 2002 and 2006, in 2006 HbA1c was measured just 0.8 times per year on average, with over 50% of all patients were not screened at all. Screening diabetic patients treated with insulin was much better, but still unsatisfactory at around 70% in 2006. It is likely that some centres are performing well, following appropriate guidelines and making regular relevant checks. However, data shortcomings mean that such disaggregation is not possible, and also mean that links cannot be made between those care providers whose patients are regularly monitored and the patient outcomes good or bad.

General Health Insurance Company data also show that the other risk factors are not examined sufficiently frequently. In 2007 lipids were measured at least once during the year for less than 60% of patients, and

active screening of incipient stages of late diabetes complications (microalbuminuria) was performed for just 10-12% of patients.

In 2006 only 5% of all screened patients with type 2 diabetes reach satisfactory values of HbA1c (<5.3%), serial lipids (TK < 130/80 mmHg; cholesterol <5.0 mmol/l; triacylglycerol <2.0 mmol/l) and blood pressure.

The data infrastructure for quality of care is weak and inhibits deeper analysis of quality of care

Available indicators suggest shortcomings in the quality of care for diabetes in the Czech Republic, but better understanding of areas of weaknesses, which can contribute to improvements in care, are undermined by significant shortcomings in information availability, and the lack of systematic quality monitoring for diabetes care.

There are shortages in basic information on diabetes. Whilst the Czech Republic does have a national type 1 diabetes and a gestational diabetes register (based only on voluntary submissions), there is no type 2 diabetes register, and at present no efforts underway to establish one. Different data infrastructures between hospitals and regions, and across insurance funds, mean that some of the data that is available cannot be compared.

Quality measures for diabetes are under developed and not systematically measured, with different insurers taking different approaches. Once a year diabetologist have to submit basic data to insurers and to the IHIS (Institute for Health Information and Statistics) – number of diabetes patients, treatment in place, number of microvascular complications – but co-morbidities such as myocardial infarction and stroke are not reported. Occurrence of uncontrolled diabetes, as measured by the percentage of individuals with diabetes mellitus with raised HbA1c, is not available. In countries where quality indicators are established and collected nationally, this information can be used to identify weaknesses in care quality nationally and, potentially, at a local or hospital or practitioner level (see, for example, the quality indicators collected for diabetes in Israel).

In addition, it is also unclear to what extent information that is available is used to improve quality of care, and fed back to practitioners, or used within hospitals. For example, it seems that most diabetes centres would be unable to easily generate a list of patients with blood pressure lower than 40/90, or with HbAc1 above 9.0%. Individual hospitals do not, at present, appear able to benchmark their diabetes care against that of other hospitals or specialist departments. Nor can data be linked across ambulatory and specialist care settings. Greater availability of data would help not just practitioners and hospitals, but could also help insurance funds identify

areas of risk or shortcomings. Poor management of diabetes, and failure to control blood glucose level, contributes to comorbidities and complications. Poor management of these comorbidities can contribute to even more acute complications. Appropriate monitoring can help all levels of care work to prevent complications earlier.

Table 4.1. Quality indicators in community health indicators for diabetes in Israel, 2009

QICH indicators (diabetes)	2009
Percentage of individuals with diabetes mellitus with a record of hemoglobin A1c (HbA1c)	92.30%
Percentage of individuals with diabetes mellitus with HbA1c less than or equal to 7.0%	48.00%
Percentage of individuals with diabetes mellitus with HbA1c greater than 9.0%	12.90%
Percentage of individuals with diabetes mellitus with HbA1c greater than 9.0% who purchased insulin	53.10%
Percentage of individuals with diabetes mellitus with a record of low-density lipoproteins (LDL) cholesterol testing	90.40%
Percentage of individuals with diabetes mellitus with low-density lipoprotein (LDL) cholesterol levels less than or equal to 100 mg/dL	65.60%
Percentage of individuals with diabetes mellitus who had an eye examination	64.30%
Percentage of individuals with diabetes mellitus with a record of microalbumin levels	74.30%
Percentage of individuals with diabetes mellitus ages 5+ years who received an influenza immunization	55.00%
Percentage of individuals with diabetes mellitus and a record of blood pressure	91.90%
Percentage of individuals with diabetes mellitus ages 18+ years with blood pressure less than or equal to 130/80 mm Hg	68.60%
Percentage of individuals with diabetes mellitus ages 18+ years with a record of body mass (BMI)	83.60%

Source: Manor, O. et al. (2012), "National Program for Quality Indicators in Community Health in Israel. Report for 2007-2009"*, Israel Journal of Health Policy Research*, Vol. 1, No. 3.

The Czech Republic should also work towards more participation in international benchmarking, which can present an opportunity to learn from the experiences, successes and failures of other countries, and to learn more about how care standards measure up to those of comparable countries. Participation OECD's work on prescribing indicators, including diabetics receiving blood pressure lowering therapy, and cholesterol lowering therapy, for example, would have been valuable for the Czech Republic.

4.5. The Czech Republic should step up efforts to provide good quality care for diabetes, and to manage complications

Role of GPs in managing diabetes should be strengthened and better incentivised

There are strong incentives for effectively managing the progression of diabetes, and reducing deterioration and greater disease complexities. If the progression of diabetes is effectively managed, this also brings lower average costs. Preventing a patient with diabetes starting dialysis, for example, can bring very significant savings year-on-year, as seen in Israel (Table 4.2). Patients with uncontrolled diabetes will likely bring higher costs associated with greater complications and treatment needs: in the same study, diabetes patients in Israel with HbA1c of 9% were associated with a 49% rise in costs over 2000 and 2001, compared to 19% increase for patients with HbA1c of 7% or lower (Chodick et al., 2005). In the Czech Republic hospitalisations for diabetes are high compared to the OECD average, which will drive up expenditure, especially if such a trend were to continue.

Table 4.2. Managing the progression of diabetes helps reduce treatment needs and control costs

	Baseline	Average annual direct cost (2001 dollars)			Change over time
	n	Year 1	Year 2	Year 3	
Patient not on dialysis	24 495	1 967	2 212	2 556	30%
Patient on dialysis	137	11 779	20 863	38 801	229%

Source: Adapted from Chodick, G. et al. (2005), "The Direct Medical Cost of Diabetes in Israel", *European Journal of Health Economics*, Vol. 6, No. 2, pp. 166-171.

The role of the primary care sector in detecting and screening for diabetes – as is already in place in the Czech Republic – and delivering patient-orientated, well-co-ordinated care for diabetes across the course of the disease should be significant. As highlighted in the Copenhagen Roadmap of the European Diabetes Leadership Forum, the delivery of co-ordinated and high-quality care responses for diabetes should be premised on a co-ordinated, life course approach that is anchored in primary care (European Diabetes Leadership Forum, 2012).

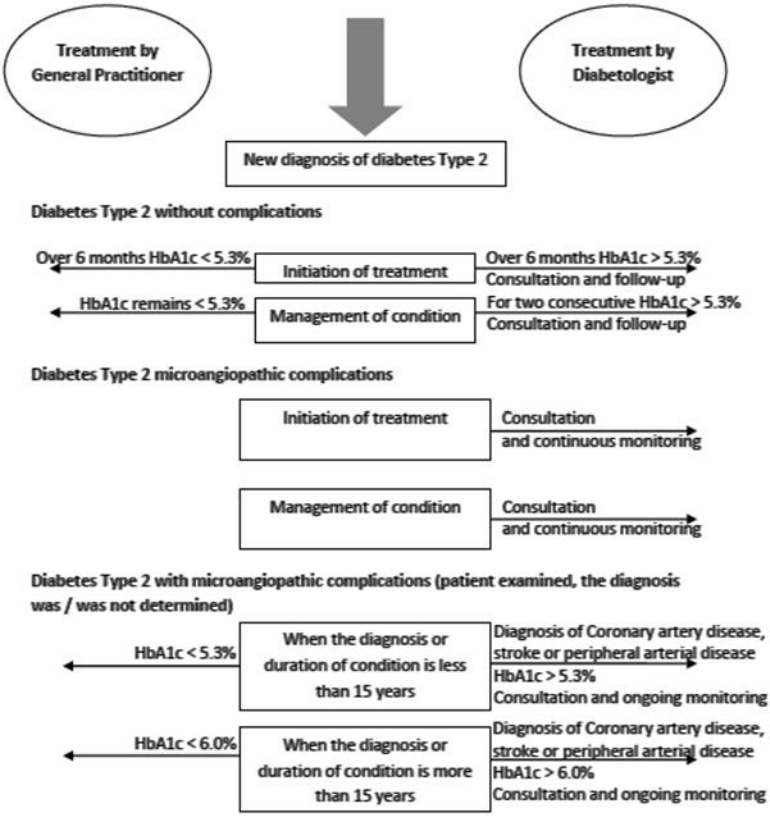
It is very likely that in order to improve quality of care, in the face of a rising burden of disease, GPs in the Czech Republic will have to play a greater role in care management for diabetes. At present, diabetologists are estimated to be delivering around one-third of care for diabetes patients, with a further third treated by GPs and one-third left with their condition

mostly un-managed .Whilst the patient pathway for diabetes appears solid (see Figure 4.4), is complicated by an apparent tendency for GPs to refer quite quickly to specialist care, and patient self-referral to specialist care. It seems unfeasible, and not cost effective, for such a division of labour to continue, especially as patient numbers rise. Indeed, in many OECD countries the bulk of diabetes management takes place at a primary care level, and there are likely gains to be had from the Czech Republic in moving towards such a model.

Currently the expectation is that GPs should be leading prevention efforts, and screening for diabetes, and managing diabetes cases which are less complex (see Figure 4.4). Due to data shortages at primary care, and weaknesses in the data infrastructure, it is difficult to judge to what extent GPs are managing those new cases without complications. However, the high rate of hospitalisations for diabetes in the Czech Republic points to weak management at a primary care and outpatient level, and suggests a need for improvement. In addition, the established patient pathway for a type 2 diabetes patient suggests that the role that GPs play in managing diabetes is relatively unambitious when compared to other countries. In many countries, GPs would be expected to initiate treatment and manage the condition for most patients without complications, and in a typical case where the patient has HbA1c > 5.3% over six months or for two consecutive tests the GP would still be unlikely to refer to a diabetologist, and would also often continue management of the condition even in a case with microangiopathic complications, possibly in conjunction with a diabetologist.

There is potential for the role of GPs in managing diabetes to be expanded, but as it stands the incentive structure does not encourage GPs to take on increased responsibilities for patients. At present in the Czech Republic, 70% of GPs' income is through a system of risk-adjusted capitation fees, and although for selected procedures a fee-for-service mechanism is used (such as preventive examinations and visits to patients' homes). This payment mechanism, and similar payment systems in other OECD countries, are widely seen as a disincentive for GPs to take on management chronic conditions such as diabetes, and for managing more complex cases. In addition to the financial disincentives in place, the established patient pathway sets a relatively low threshold for referral to a diabetologist, and patients are able to self-refer to specialists and appear to have a preference for doing so.

Figure 4.4. Care pathway for patient with type 2 diabetes



Source: Adapted from Czech Ministry of Health (2010), *Bulletin of the Czech Ministry of Health*, Vol. 8, released 10 July 2010.

A number of countries have been taking innovative approaches to payment of providers for diabetes care to encourage high-quality care. "Pay for Performance" (P4P) schemes, which provide financial incentives for providing good quality care for people with chronic diseases, are one approach that has been taken to improve diabetes management at primary care. The Quality and Outcomes Framework (QOF) in place in the United Kingdom gives GPs a financial incentive to carry out certain tasks for patients with diabetes, and also provides a very rich and important source of data on primary care-level management of chronic diseases, and how well different practices are meeting targets. All QOF results are available publically online, by practice.

Box 4.5. Incentivising high-quality care for diabetes in primary care: the United Kingdom's QOF scheme

The Quality and Outcomes Framework in the United Kingdom sets a range of indicators for GP practices, for which the practice is financially rewarded if the indicators are met. In 2013/14 there will ten indicators for diabetes care for which GPs can be financially rewarded for meeting targets, which include:

- an organisational indicator (the contractor establishes and maintains a register of all patients aged 17 or over with diabetes mellitus, which specifies the type of diabetes where a diagnosis has been confirmed)
- and a range of clinical or "ongoing management" indicators:
  - the percentage of patients with diabetes, on the register, in whom the last blood pressure reading (measured in the preceding 12 months) is 150/90 mmHg or less
  - the percentage of patients with diabetes, on the register, in whom the last blood pressure reading (measured in the preceding 12 months) is 140/80 mmHg or less
  - the percentage of patients with diabetes, on the register, whose last measured total cholesterol (measured within the preceding 12 months) is 5 mmol/l or less
  - the percentage of patients with diabetes, on the register, with a diagnosis of nephropathy (clinical proteinuria) or micro-albuminuria who are currently treated with an ACE-I (or ARBs)
  - the percentage of patients with diabetes, on the register, with a record of a foot examination and risk classification: 1) low risk (normal sensation, palpable pulses), 2) increased risk (neuropathy or absent pulses), 3) high risk (neuropathy or absent pulses plus deformity or skin changes in previous ulcer) or 4) ulcerated foot within the preceding 12 months.

Source: NHS Employers (2013), *2013/14 General Medical Services (GMS) Contract Quality and Outcomes Framework (QOF): Guidance for GMS contract 2013/14*, www.nhsemployers.org/Aboutus/Publications, accessed on 2 January 2014.

Whilst there have been some challenges around the introduction of the QOF, including around the setting of appropriate indicators and financial rewards, there are some suggestions that the QOF has been influential in improving the quality of care for diabetes by GPs (Khunti et al., 2007). Some studies have found that the introduction of the QOF appeared to drive improvements in percentage of patients achieving blood pressure control targets, rates of recording of HbA2c, blood pressure and cholesterol rates, and for meeting HbA1c, blood pressure and cholesterol targets (see Alshamsan et al., 2010).

Improved quality of care for diabetes is of key interest to health insurance funds, as more effective management by GPs should reduce the medium-term costs of diabetes, reducing complications and the need for specialist care and hospitalisation. In the Czech Republic some health insurance funds are already recognising this, and putting in place programmes for GPs with incentives for good performance, but are mostly limited to incentives for data reporting and the sharing of patient records (using online platforms). In such programmes, for which patients have given permission for their data to be used, data can be shared between the GP and the patient, which can support self-management by the patient. This is a positive step, and better data infrastructure for primary care, including monitoring of quality and benchmarking against other providers (when patient data is appropriately anonymised) could support GPs in improving care quality, as could better support and co-ordination with specialists. More widespread establishment of such programmes could ultimately create a non-financial incentive for good quality care by GPs as they compare their treatment approaches and outcomes to those of their peers.

With increased incentives for GPs to take on responsibilities for managing diabetes cases, there will be a need to ensure that GPs are sufficiently well-trained to respond to the needs of patients, and to take on more complex cases. Better support from specialists, and a more integrated care approach (see Section 4.5) will be key to this. It may also be desirable to ensure that GPs have access to appropriate Continuing Professional Development, and primary care specific clinical guidelines. Such measure will help GPs provide high-quality care for patients with more complex needs than they might have become accustomed to, and help reduce the trend of quickly referring more complex cases to specialist care.

Co-ordination between primary and specialist care could be improved

Better alignment of financial incentives may be needed to overcome current strong disincentives for GPs to play a greater role in the management of chronic conditions such as diabetes, but will be most effective alongside efforts to improve co-ordination of care for diabetes, and through the prioritisation of an integrated patient-centred approach. With the growing prevalence of diabetes the Czech Republic will need to look, as other OECD countries have been doing, to new models of care which are more effective at managing such chronic conditions, and can have positive implications for the cost of care. In addition to weak incentives for GPs to take on the management of chronic diseases, there is no incentive for integrated care between primary and specialist services.

Chronic diseases demand a move away from health systems with an acute care focus, towards an integrated and co-ordinated focus. Integrated care, where co-ordination between levels of care is good, has been shown to bring better outcomes, and reduce hospitalisations (Brown, 2012; Frontier Economics, 2012; Goodwin, 2012). Disease Management Programmes, where multiple health professionals work together, are one way that co-ordinated care for diabetes can be driven forward (European Diabetes Leadership Forum, 2012; McEwen, 2009). At present in the Czech Republic Disease Management Programmes are not widely offered, and insurance funds and the Ministry of Health are not actively pursuing such programmes, nor are there any incentives for stakeholders to participate in them. One small insurer, linked to Skoda, has a small coverage of 125 000 individuals and has been make good efforts to deliver managed care. This small regional insurer has been more actively in touch with GPs than is typical in the Czech Republic, and has been helping promote information exchange around chronic conditions including diabetes, and support training, collaboration and dialogue across the patient pathway. More insurance funds should be looking to promote similar co-ordinated disease management approaches, which can be successful on a larger scale, as has been seen for the Netherlands.

Box 4.6. Bundled payments for integrated diabetes care in the Netherlands

Integrated disease management in the Netherlands has been quite successfully introduced for a number of chronic conditions through a bundled payment programme launched in 2007, first for diabetes, and later expanded to COPD, heart failure and CVD risk factors in 2010. As part of this programme health insurers negotiate a single annual fee with an entity (care group) to provide integrated care. Care groups consist of multidisciplinary care providers – and can subcontract with other care providers – which work together to provide care for patients, for which they are reimbursed in a bundled payment. These tend to be co-operating general practices, allied health providers and/or hospitals, which are then responsible for organising the care and ensuring its delivery.

Care groups also provide the insurer with data on performance indicators for both process and care outcomes, for example percentage of patients who had foot examinations in the previous 12 months; percentage of patients whose blood sugar levels are under control. Standards for these indicators are largely based on existing clinical guidelines, protocols, and performance indicators, and are developed and approved by care organisations and patient associations. A care standard will set out required components of care but will not specify who is to provide the care or how it is delivered. For instance, a care standard for type 2 diabetes specifies one elaborated 12-month check-up, three-monthly check-ups, one annual foot examination, one annual eye examination, dietary counselling, support and counselling in smoking reduction or cessation, laboratory testing (e.g. HbA1c, LDL cholesterol, kidney function, microalbuminuria), patient education and support in self-care. Indicators are aimed to assist health insurers in their choice of care providers and in price negotiation.

Box 4.6. Bundled payments for integrated diabetes care in the Netherlands *(cont.)*

When evaluated in 2012 findings based on process indicators suggested mild to moderate improvements in quality of care for diabetes, with patients expressing positive judgements about the operation and on co-ordination between their health care providers. The bundled payment programme is still at the early stages of development, but initial results do suggest the initiative has brought greater integration of care sectors, better transparency of delivered care, and there are some indications of programme cost being offset by fewer hospitalisations. Co-ordinated care between providers has increased, due to an introduction of mandatory record-keeping that individual care providers are required to do based on their contract.

However, challenges do remain. Studies have identified some potential weaknesses of the new payment scheme, particularly around the adequacy of information transparency, a lack of competition between care groups, and the negotiating powers of GPs. While transparency of care increased with the introduction of bundled payments, current IT systems are not sufficiently developed to fulfil the increasing information needs and are the main obstacles to exchange data among care groups. In part, this is due to a lack of uniformity on how to register health care quality information. There are also concerns about the lack of competition between care groups, as the current trend is to set up one group per region. Selective subcontracting of primary care providers by the care groups could limit patients' choice of providers, although such constraints are more of an issue in smaller care groups than in larger ones. For example, a smaller care group may provide access to only one dietician, while a larger one contracts with several. In addition, many care groups have contracted only one institution or agency for eye examinations. However, patient organisations have not yet raised concerns about subcontracting. Furthermore, in the subcontracting market, individual health care providers report that the negotiating advantage of the GPs – who are central providers of health care and simultaneously co-owners of care groups – was too strong. The national evaluation committee recommended to the government in June 2012 to continue with the bundled payment system to allow for further evaluation of its impact, and that evaluations need to be sure to pay greater attention to patient evaluation and on how the care model responds to their needs.

Source: Struijs, J.N. et al. (2010), *Experimenting with a Bundled Payment System for Diabetes Care in the Netherlands: The First Tangible Effects*, Institute for Public Health and the Environment, Bilthoven, Netherlands; De Bakker, D.H. et al. (2012), "Early Results from Adoption of Bundled Payment for Diabetes Care in the Netherlands Show Improvement in Care Coordination", *Health Affairs*, Vol. 31, No. 2, pp. 426-33; De Jong-van Til, J.T. et al. (2012), *De Organisatie van Zorggroepen Anno 2011: Huidige Stand van Zaken en de Ontwikkelingen in de Afgelopen Jaren (Organization of care groups in 2011: Current matters and developments over the last years),* Bilthoven, RIVM (in Dutch); Struijs, J.N. et al. (2012), *Three Years of Bundled Payment for Diabetes Care in the Netherlands: Impact on Health Care Delivery Process and the Quality of Care*, National Institute for Public Health and the Environment, Bilthoven, Netherlands.

Better integrated care will also rely upon better sharing of data, and sharing of patient records. At present in the Czech Republic data cannot be linked between ambulatory and specialist care, which limits efforts at co-ordinating care. Forwarding of patient records does appear to be in place, but is not necessarily consistent across all providers. Wider improvements to

the data infrastructure are needed (see Chapter 2), but improvements would also likely come with the establishment of more integrated care approaches. Disease Management Programmes, and bundled payments such as in the Netherlands, encourage the reporting of process and outcome indicators across levels of care. As such, these programmes can generate an important source of shared data which can feed back to providers and payers and contribute to better understanding of effective care delivery.

Better patient education and self-management practices are needed

As part of responding to the growing burden of diabetes care in the Czech Republic, more patient self-management is needed, and efforts to support patients in taking on these responsibilities are called for. Diabetes is a lifestyle disease, which requires individuals with diabetes to appropriately manage their condition, making daily decisions about nutrition, activity and medication. Self-care skills, such as glucose monitoring, foot examination, and taking medication are also usually important components (IDF, 2011). A chronic condition, to effectively manage diabetes demands that the individual play a role in monitoring and controlling symptoms, treatment, physical and psychological consequences, and lifestyle changes (ibid.). Given this, it is very important that appropriate and effective patient education is in place, and that patients are supported by health care professionals in playing an active role in their own care. Self-monitoring and self-management of diabetes does not appear to be well established in the Czech Republic.

An increased role for GPs in chronic care management, and the introduction of Disease Management Programmes, would mean that a good support system for patients is put in place, which could help increase self-care. Disease Management Programmes promote patient orientated care, and typically encourage greater patient participation in care and self-management. In addition, more integrated care pathways can help keep the patient informed about their condition, and about the treatment progression for them. Appropriate patient education should also take place at each step of the care pathway, including upon diagnosis. For GPs who are less experienced at delivering such services should be given support by specialists (European Diabetes Leadership Forum, 2012). When patients are offered education sessions or meetings at diabetes centres, as is often the case, it would be appropriate if these were followed-up by a meeting with the GP, to answer any questions that the patient has and to ensure that they feel ready to effectively self-manage their condition. The Czech Diabetes Society has a guideline for patient self-management, which should support practitioners in offering appropriate direction to patients.

While efforts to improve self-care approaches should come directly from service providers, there may also be a need for additional commitment by the ministry, and by patient groups. Traditionally, patients in the Czech Republic have not been used to advocating for their own care or looking for information. This likely means that additional drive towards establishing a self-care and self-management approach will be needed. For example, some commitment may be needed to establish high-quality educational programmes and systems for patients. At present, there are some promising approaches to patient education, but no standardisation across the country, or accreditation of these programmes. A more public campaign around population education for diabetes, increasing awareness of the disease, its symptoms, and its management, could also have positive impacts on prevention and early detection.

Patient groups, including the established patient group for diabetes, could also play a bigger role in encouraging awareness of self-care, and also of the burden of diabetes and living with diabetes. Patient empowerment through activities driven by civil society organisations and patient associations can have a positive impact, and was recommended in the European Diabetes Leadership Forum's recommendations for good practice in diabetes. At present patient organisations in the Czech Republic are focusing on entitlements, e.g. spa treatments, rather than on quality of care. If supported by an effective patient organisation, patients could become more confident in advocating for their own care, and pushing for support in managing their condition. Patients and patient organisations could take the lead in demanding quality improvements – and accessible quality indicators and data – for their own care. To take on a wider advocacy role, with attention to quality, patients' experiences of care, and a role supporting and educating individuals with diabetes, would follow the lead of many high profile and influential patient organisations in other OECD countries.

4.6. Conclusion

The Czech Republic has in place a comprehensive care approach for diabetes, which covers primary prevention, screening and diagnosis, management and treatment, and response to complications, which is backed up by a national diabetes plan, and a range of clinical guidelines. The measures that the Czech Republic has been taking appear to have delivered some positive improvements, as complication rates have dropped in some areas. Data limitations limit the scope of detailed analysis, and efforts should be made to address them, but available data does nonetheless suggest areas for improvement. A stronger data infrastructure, that is utilisable by providers, will shed more light of areas of possible concern – low rates of HbA1c and lipids screening, patients not meeting satisfactory values for

HbA1c and lipids, rates of complications such as diabetic foot and renal failure that could still be reduced – and help benchmark care within the Czech Republic and internationally to drive quality improvements.

However, the risk factors for diabetes – obesity, raised blood pressure and cholesterol, high rates of smoking – in the Czech Republic are high, and with an ageing population already driving up dates of diabetes, the Czech Republic needs to explore ways of strengthening prevention efforts. To reduce obesity, health education and promotion, regulation and fiscal measures, and counselling in primary care have all been found to have favourable cost-effectiveness ratios. At present, the Czech Republic is relying mostly on health education and promotion approaches, and some very limited programmes in insurance funds, which have not been evaluated. A wider range of effective approaches is likely needed, including a larger number of stakeholders – notably insurance funds, employers, and patient groups – to maximise the potential gains to be had from effective prevention interventions.

Even with effective prevention efforts the burden of diabetes will continue to rise, and a shift in responsibilities for diabetic patients, alongside better integrated care, are called for. Relative to other countries, GPs are playing a relatively limited role in caring for diabetic patients. GPs should be encouraged – with possible changes to the incentive structure for GP activity – and supported – through contact with specialists, good primary-care appropriate guidelines, and high-quality CPD – to take on greater responsibilities for caring for diabetic patients. While the role played by the primary care sector should increase, a co-ordinated, patient-centred approach is a priority for high-quality care. Integrated care approaches, for example Disease Management Programmes, can bring improvements in outcomes and can help reduce hospitalisations, but are underused in the Czech Republic. Relatively high rates of hospitalisation for diabetes also support the idea that a more integrated approach, and stronger primary care provision, are needed not just to cope with the rising prevalence of diabetes but also to help deliver higher quality care for existing diabetes patients. Lastly, there is a bigger role for patients to play, and with good education and support, patients should be encouraged to monitor and manage their diabetes, in conjunction with their care providers.

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