



CANCER CONTROL IN THE CZECH REPUBLIC

FINDINGS FROM THE INDEX
OF CANCER PREPAREDNESS

WRITTEN BY

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ABOUT THIS REPORT

Cancer control in the Czech Republic: findings from the Index of Cancer Preparedness is an Economist Intelligence Unit report, sponsored by SOTIO and PPF.

One of Europe's ageing societies, the Czech Republic faces a growing cancer burden. Its response to cancer has been strong, helped by a generous health insurance system, a skilled workforce and advanced infrastructure. But to accelerate success, more coordination of resources is needed, as is greater attention to patient-centred care. This independent report discusses the strengths and weaknesses of the Czech cancer response, based on parameters of the Index of Cancer Preparedness.

The findings of this report are based on the assessment of the Czech Republic using the framework of the Index of Cancer Preparedness, desk research, as well as interviews with local experts who validated findings and offered additional nuances.

Our thanks are due to the following for their time and insight (listed alphabetically):

- **Jirina Bartunkova**, Board of the Czech Society of Immunology; Head of the Department of Immunology of the 2nd Faculty of Medicine of Charles University in Prague & Motol University Hospital
- **Veronika Cibulova**, General Secretary of the patient organization VERONICA
- **Tomas Dolezal**, Managing Director of the Institute of Health Economics and Technology Assessment (IHETA)
- **Jana Prausova**, President of the Czech Society for Oncology
- **Miroslav Specian**, Board Member of the Hippokrates Endowment Fund



The Czech Republic's response to cancer has been strong, but to accelerate success, more coordination of resources is needed, as is greater attention to patient-centred care.

FOREWORD

It has been 50 years since US President Richard Nixon declared war on cancer in 1971, launching a program of massive investment into research, development and patient care. Half a century later, hundreds of billions of dollars have been poured in and yet, despite the efforts of thousands of researchers and hundreds of teams all over the world, the war on cancer is far from over.

SOTIO, a PPF Group company, has been focusing on research and development of new methods of treatment to battle cancer for more than 10 years. We work with prestigious medical centers and experts across the world to improve cancer care, and so we are delighted to sponsor the addition of the Czech Republic to the global Index of Cancer Preparedness as part of World Cancer Initiative program. It complements our regular analytical work, centering on global activities in biotechnology, and supports the PPF Group's sustained endeavor to create and share expertise that rivals the world's best. Simply put, we want to foster inspiration and knowledge, and support developments that help the Czech Republic progress.

The Index of Cancer Preparedness dovetails with all the aforesaid. Using 45 precisely defined parameters, it has helped objectivize the current status of cancer care in Czechia. It shows the areas in which we excel on an international scale as well as those in which there is room for improvement and opportunities to take further important steps forward. It is also a font from which to draw inspiration from international practice even though it may not always be fully transferable due to local specificities.

The Czech Republic came eighth in a comprehensive rating of 29 countries around the globe. I am an optimist and our

country's excellent position did not surprise me when it comes to areas such as access to care, the network of healthcare facilities and the level of qualification of healthcare professionals. As the Index confirmed, all of that is above par in Czechia. Given my knowledge of the field, I was not surprised either by certain shortcomings revealed with regard to regulation and strategies. Oncology care is currently developing at a rapid pace. Leading Czech facilities take part in multiple clinical trials and more and more innovative treatment methods are being approved. Success in fighting cancer requires primarily a concept for ensuring that patients have early access to specialized physicians and effective treatments. Along with good quality screening programs allowing for early detection of disease, this may be the path towards improving not only the Czech Republic's rating on the chart but also, more importantly, the outlook for tens of thousands of Czech patients battling with this treacherous disease.

The full results of the Index, which are available at www.fightingcancer.eu, will also form the basis for an expert debate planned for the end of 2021 between representatives of the public and the professional and academic sectors, with participants from around the world.

Radek Špíšek
CEO, SOTIO



EXECUTIVE SUMMARY

The Czech Republic faces an important cancer challenge. Cancer is the second most common cause of death today and, as an ageing society, the number of new cases is expected to increase in the next decade.

High prevalence of risk factors such as smoking, obesity and physical inactivity may also contribute to this trend. But the country's response to cancer is strong, even if there are signs that this is not a well-coordinated effort. The country is ranked 8th among 29 countries examined in the Index of Cancer Preparedness (ICP) based on the quality of its cancer control actions.

Policy and planning is the weakest category in the ICP, although it is still above the global average (ranked 15th). The most visible weakness is regarding a national cancer control plan. Even though a plan exists, it lacks details on implementation, monitoring and evaluation. An initiative by the Czech Oncological Society, the current plan lacks the leadership and ownership of a government agency, which could be helpful to allocate resources strategically. The country fares better in the assessment of cancer data and research. Particularly, a high-quality population-based cancer registry provides a foundation for effective tracking of cancer and action by health institutions.

The country is ranked 9th in the assessment of care delivery. It is a leader in immunisation and screening and early detection. The wide reach of these services among the population is supported by comprehensive coverage

by health insurance schemes. Modern procedures offered include HPV DNA testing and BRCA1 or BRCA2 mutations genetic testing. There is also a strong health workforce and universal coverage of treatments in the WHO essential cancer drug list. Treatment at Complex Oncology Centres (COCs) across the country is recognised as very high quality, but some gaps remain. Referral from primary to specialised care can be slow, while follow-up services for children survivors and palliative care are not provided in a standardised way in all institutions. Patient-centred approaches are also to be implemented more consistently across the health system.

The best performing category in the ICP is health system and governance (ranked 6th). Infrastructure is a particular strength as measured by the availability of skilled healthcare professionals. An indication of political will, healthcare funding is average among the group but could still be boosted to catch up with the growing complexity of cancer demands in the population. There is a Health Technology Assessment (HTA) mechanism but its remit could be expanded to cover medical devices and medicines used in hospitals. Lastly, there are examples of intersectoral collaboration in healthcare between the health and education authorities in promoting healthy lifestyles.

INTRODUCTION

01

Cancer is the second most common cause of death in the Czech Republic after cardiovascular diseases, explaining nearly 27% of all deaths.¹ In 2020, there were around 67,000 new cases of cancer in the Czech Republic and 27,000 deaths.²

With a median age of 43.3 years, the Czech Republic is among the top 30 oldest societies³ and as other European nations, is ageing.⁴ This signals that the

cancer challenge is likely to continue to grow. By 2030, it is estimated that new cases will rise to about 76,000 and deaths to about 32,500.⁵

TABLE 1. Cancer as a cause of death, percentage and ranking, estimates

	2010		2019	
	Cancer as a percentage of all deaths	Rank by cause of death	Cancer as a percentage of all deaths	Rank by cause of death
Czech Republic	28.51%	2nd	26.97%	2nd
Eastern Europe	24.80%	2nd	25.18%	2nd
Western Europe	30.81%	2nd	30.15%	2nd

Source: IHME, Global Health Data Exchange. Available at: <http://ghdx.healthdata.org/gbd-results-tool>

TABLE 2. Most common cancers (total incidence and mortality), estimates, 2020

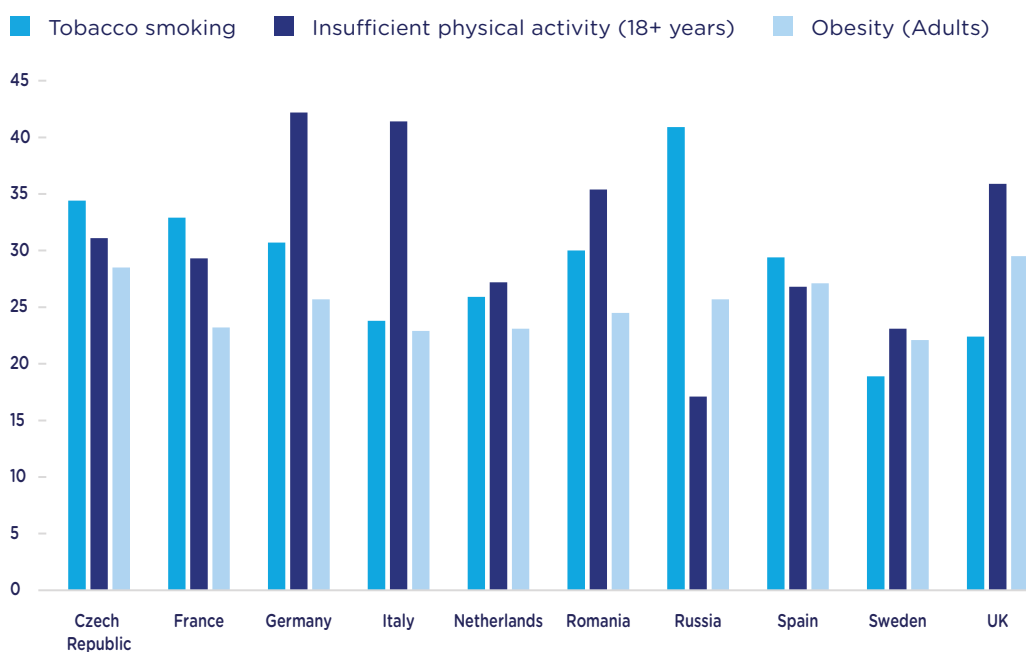
	Incidence (total), both sexes			Mortality (total), both sexes		
	1	2	3	1	2	3
Czech Republic	Prostate	Colorectum	Breast	Lung	Colorectum	Pancreas
Central and Eastern Europe	Colorectum	Breast	Lung	Lung	Colorectum	Breast
Western Europe	Prostate	Breast	Lung	Lung	Colorectum	Breast

Source: IARC, Cancer Today 2020. Available at: <https://gco.iarc.fr/today/home>

Consistent with the profiles of other high-income countries, infection-related types of cancer (such as cervical, stomach or liver cancers) make up a relatively small portion of new cases, while lifestyle-related types of cancer are more significant. Prostate, colorectal, breast, lung and kidney cancer are the most common in terms of incidence while lung, colorectal, pancreas, breast and prostate are the most common in terms of deaths.⁶

The Czech Republic should also pay attention to risk factors which could impact the future cancer burden. There is a high prevalence of tobacco smoking (34.4% of adults), which is second only to Russia among the ten European countries examined in the ICP. Insufficient physical activity is also relatively high (31.1%), although it is worse in Germany, Italy, the UK and Romania. Obesity is another important risk factor, affecting 28.5% of adults, the second-worst after the UK in the ten European countries analysed.

FIGURE 1. Prevalence of smoking, insufficient physical activity (18+) and obesity (adults) as a percentage of the population, 2016



Source: WHO. Background indicators collected for ICP

There are, however, good indicators of effectiveness of cancer control in the country. The mortality to incidence ratio (M:I) is a metric used to assess the overall efficiency of cancer control; assuming similar cancer burdens, a country with fewer deaths achieves a smaller ratio, thus there may be a more successful cancer control programme in place.⁷ The ratio is below the average (where lower is better) of ten European countries examined,

and at a similar level as France, Germany and Spain. Survival data is another key measure of success. Although not too far behind, there is still some catching to do with richer European countries in terms of five-year survival rates. For breast cancer, differences are somewhat small, but these are larger for prostate and colon cancer.

FIGURE 2. Mortality to incidence ratio in selected European countries, 2020



Source: EIU calculations, based on data from IARC

TABLE 3. Five-year net survival rate (%) for selected cancers, 2010-14

	"Breast cancer five-year net survival"	Lung cancer five-year net survival	Prostate cancer five-year net survival	Colon cancer five-year net survival
Czech Republic	81.4	10.6	85.3	56.1
Germany	86	18.3	91.6	64.8
France	86.7	17.3	93.1	63.7
Spain	85.2	13.5	89.7	63.2

Source: C Allemani et al., Global surveillance of trends in cancer survival 2000-14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries, Lancet, 2018

THE INDEX OF CANCER PREPAREDNESS

02

This report follows The Economist Intelligence Unit's 2019 publication *Cancer preparedness around the world: National readiness for a global epidemic*, which evaluated 28 countries around the world. This report specifically examines the recent inclusion of the Czech Republic in the assessment.

The Index of Cancer Preparedness (ICP) measures how ready healthcare systems are for the challenge of cancer and seeks to answer this question: how well prepared are countries to achieve major reductions in premature deaths from cancer, increase cancer survival rates, and improve the quality of life for cancer patients and survivors?

The ICP was developed following a literature review and an expert panel meeting that guided the selection of suitable indicators of cancer preparedness. The index explores the issue of cancer preparedness through three broad domains:

- 1. Policy and planning:** focusing on levers that are mostly in the hands of policymakers.
- 2. Care delivery:** looking at capacity to deliver cancer-specific services within health systems themselves.
- 3. Health systems and governance:** acknowledging that cancer cannot be defeated by cancer-focused activities alone.

The three domains comprise 13 sub-domains and 45 indicators. These range from the existence of policies to encourage physical activity to the extent of palliative care provision in the public health system. Other indicators look at issues as various as the size of the healthcare workforce and the prevalence of corruption. Indicators for each country were scored out of 100 following standard guidelines. Indicator scores were then aggregated using weighted averages into subdomain scores, which were finally computed into an overall score. Scoring and weighting across indicators were defined by the expert panel. The ICP measurements rely on evidence collected by The Economist Intelligence Unit and from data obtained from respected international databases.

OVERALL FINDINGS FOR THE CZECH REPUBLIC

TABLE 4. Overall and category rankings of the ICP

OVERALL SCORE	1. POLICY & PLANNING	2. CARE DELIVERY	3. HEALTH SYSTEM AND GOVERNANCE
● 1 Australia 91.3	● 1 Australia 100.0	● 1 United States 93.9	● 1 Sweden 86.4
● 2 Canada 90.0	● 2 Canada 97.8	● 2 Canada 92.4	● 2 Australia 77.3
● 3 Germany 88.1	● 3 United Kingdom 94.1	● 3 Spain 91.5	● 3 Netherlands 75.1
● 4 United Kingdom 87.9	● 4 Argentina 93.9	● 4 Germany 91.4	● =4 France 74.3
● 5 Netherlands 87.6	● 5 Netherlands 93.8	● 5 United Kingdom 90.0	● =4 Germany 74.3
● 6 United States 87.4	● 6 Turkey 91.9	● 6 Australia 89.7	● 6 Czech Republic 74.0
● 7 France 86.1	● =7 France 91.6	● =7 Netherlands 87.8	● 7 United States 73.8
● =8 Czech Republic 84.1	● =7 Germany 91.6	● =7 Sweden 87.8	● 8 United Kingdom 71.2
● =8 Spain 84.1	● 9 South Korea 88.7	● 9 Czech Republic 87.0	● 9 Canada 69.5
● 10 Sweden 83.2	● 10 Thailand 88.4	● 10 France 86.7	● 10 South Korea 69.1
● 11 South Korea 81.2	● 11 Brazil 88.2	● 11 Japan 86.4	● 11 Chile 63.2
● 12 Japan 81.0	● 12 United States 87.8	● 12 Chile 85.6	● 12 Spain 62.8
● 13 Brazil 79.8	● 13 Spain 87.5	● 13 Italy 84.1	● 13 Brazil 58.6
● 14 Italy 79.0	● 14 Japan 87.3	● =14 Argentina 83.6	● 14 Japan 57.3
● 15 Colombia 78.0	● 15 Czech Republic 86.3	● =14 Colombia 83.6	● AVERAGE 55.3
● 16 Argentina 77.8	● 16 Colombia 85.9	● 16 Brazil 82.0	● 15 Italy 55.1
● AVERAGE 73.9	● 17 Italy 85.7	● 17 South Korea 79.9	● 16 Colombia 51.2
● 17 Chile 73.1	● AVERAGE 82.1	● AVERAGE 75.0	● 17 China 49.2
● 18 Thailand 66.7	● 18 China 79.8	● 18 Russia 70.3	● 18 Thailand 47.7
● 19 China 66.6	● 19 Kenya 77.8	● 19 Kenya 68.3	● 19 Romania 47.2
● 20 Turkey 66.4	● 20 Sweden 77.1	● 20 South Africa 67.8	● 20 South Africa 46.8
● 21 Kenya 64.9	● 21 Egypt 72.7	● 21 China 62.0	● 21 Mexico 42.8
● 22 South Africa 64.6	● 22 Indonesia 71.4	● 22 Mexico 57.5	● =22 Indonesia 42.5
● 23 Russia 61.7	● 23 Mexico 71.2	● 23 Turkey 55.0	● =22 Russia 42.5
● 24 Mexico 60.0	● 24 South Africa 70.2	● 24 Romania 54.9	● 24 Turkey 38.2
● 25 Indonesia 58.6	● 25 India 69.4	● 25 Thailand 54.4	● 25 India 37.8
● 26 Saudi Arabia 54.5	● 26 Saudi Arabia 66.3	● =26 Indonesia 53.9	● 26 Argentina 34.1
● 27 Romania 54.4	● 27 Chile 65.6	● =26 Saudi Arabia 53.9	● 27 Kenya 32.4
● 28 India 53.3	● 28 Russia 62.7	● 28 Egypt 47.5	● 28 Saudi Arabia 32.2
● 29 Egypt 51.5	● 29 Romania 57.4	● 29 India 45.0	● 29 Egypt 17.2

Source: ICP

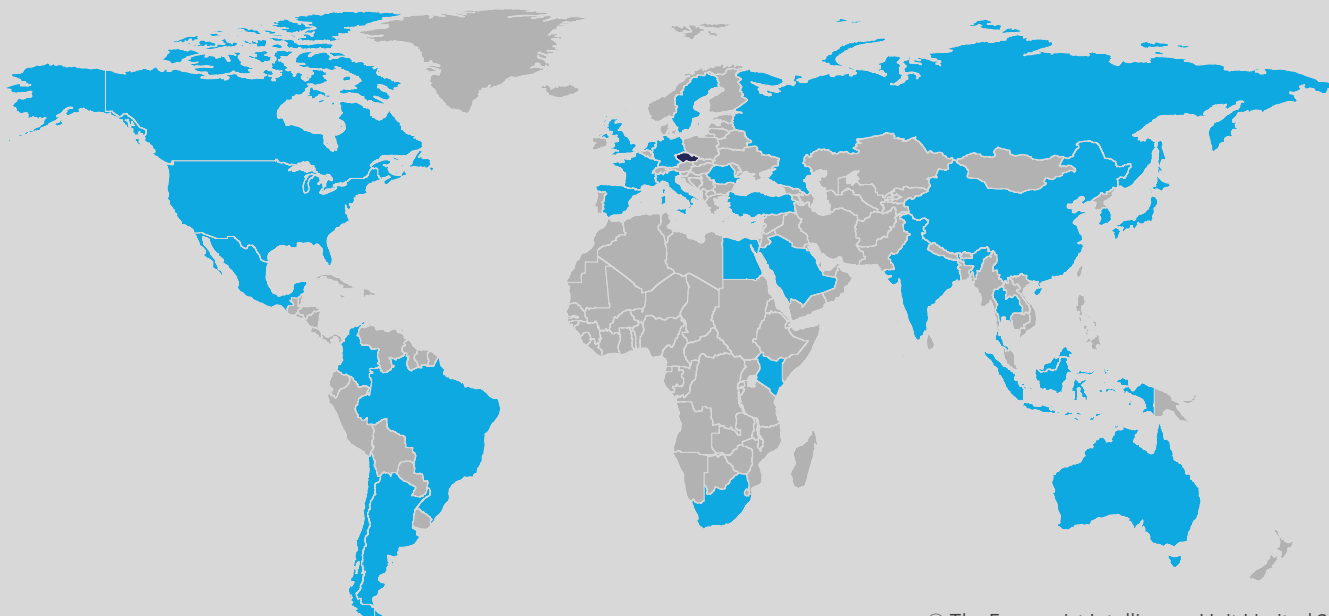
The Czech republic is ranked 8th among 29 countries examined in the ICP (same as Spain). An above-average performance, it ranks above Sweden and South Korea but below the US and France. Its best performing category is health system and governance (ranked 6th); infrastructure is a particular strength, although political will is lagging. It is ranked 9th on care delivery. It is a leading country in immunisation, screening and early detection and service availability but clinical guidelines and patient-centred care can be improved. Policy and planning is the weakest area (ranked 15th, although still above the global average), where the most visible weakness is the lack of a fully developed national cancer control plan, although a cancer registry and cancer research are well developed.

To interpret the value of the ICP requires acknowledgment of the limitations in modelling a complex reality.

- First, we include only indicators that draw on broadly comparable data available across all countries. In aiming for global comparability, some of the country specificity and context may be lost.
- For some indicators we rely on the latest available data from international sources. There may be lags in this information as global studies take several years to be completed. In addition, some of the information may rely on a single data point, such as self reporting from officials to the WHO.

- The need for consistency in measuring results across countries can sometimes produce anomalous scores. Countries may have different coverage or strategies for various interventions depending on their priorities and epidemiological profiles. For example, a country may address hepatitis B vaccination differently based on prevalence. But for the purpose of regional comparability we take only one view, and that is the proportion of one-year-olds who complete a full vaccination schedule.
 - This is mainly a study of inputs (such as policy, institutions, resources, infrastructure and governance). Hence, results can be contradictory with observed outcomes. For example, a country with recent policy developments may score well even where healthcare outcomes are suboptimal. A self-assessment of the quality of implementation of policies is a crucial task for country leaders to ensure that these translate into positive outcomes.
 - Measuring policies has inherent difficulties. Policies may not last long or may be insufficiently implemented to have an impact. Why measure policies? Because policy is the first step in recognising a problem and working towards a solution.
 - Lack of data across every country makes it possible for the ICP to measure implementation to only a limited degree. Following through on policy statements is far from guaranteed, and the quality of implementation can vary greatly. For example, the existence of a national cervical cancer screening programme in the public service is not a confirmation of optimal coverage.
 - This study presents only a relative classification of a small group of countries, so interpretation of rankings should be done with caution.
- For further details on the methodology of the ICP, please see the methodology report on the [World Cancer Initiative webpage](#).

The Czech republic is ranked 8th among 29 countries examined in the ICP.



POLICY AND PLANNING

03

CANCER POLICIES

The Czech Republic has a National Cancer Control Programme (NCCP) since 2006. Its main objectives address cancer prevention, lowering the incidence and mortality rate, improving quality of life of patients, rationalising the costs of diagnosis and treatment and optimising access to new diagnostic and treatment procedures.⁸ Proposed by the Czech Oncological Society, the NCCP has been supported by Czech hospitals, and also by the Ministry of Health.⁹ The cancer plan addresses elements such as the continuum of cancer services and supportive and palliative care, but it lacks in addressing patient-centred care or including specific targets. The document lacks an implementation framework (including for example details on leadership, a timeline and financial resources) and monitoring and evaluation details. Lack of specificity on these aspects makes a concrete and coordinated national effort against cancer difficult to achieve. Indeed, it has been noted that, as the programme was initiated by the Czech Oncological Society, a professional body, it is not properly resourced, while it lacks broad social and political support.¹⁰

“As to general policy, I would say that there is a lack of a conceptual work, on the national level,” notes Jirina Bartunkova, Board of the Czech Society of Immunology and Head of the Department of Immunology of the 2nd Faculty of Medicine of Charles University in Prague & Motol University Hospital. “I would say things are moving in a chaotic way”.

Tomas Dolezal, Managing Director of the Institute of health Economics and Technology Assessment (iHETA), adds: “there is no KPI that should be achieved within 5-10 years, or what the tools are to get there”. A well-structured plan is especially important in times of uncertainty, providing stability for the cancer project. According to Jana Prausova, President of the Czech Society for Oncology, there is a risk that Covid-19 may disrupt pre-existing plans in the field of cancer. “We need a long-term vision of sustainability, of high-quality treatment, and motivation for realising a long-term concept,” she adds. Similarly, Mr Specian notes: “We have seen funding diverted to other urgent areas such as Covid, and it is important to have funding for all health areas. It is important to have money in our budgets allocated to cancer.”

But progress in this area is happening. The current NCCP has been revised and updated, and in April 2021 a newer version was presented to the Ministry of Health, though it has not yet been adopted. Expected changes include an emphasis on multidisciplinary teams, patient-centred care, new types of treatment, and a larger emphasis on prevention and screening programmes.¹¹ A final version is expected by the end of 2021, according to Veronika Cibulova, General Secretary of the patient organization VERONICA. “Now the documents will be presented to the respective stakeholders, I expect that patients will be one of the groups that should be commenting on it,” she adds.

“

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Tomas Dolezal, Managing Director of the Institute of health Economics and Technology Assessment (iHETA)

“

We need a long-term vision of sustainability, of high-quality treatment, and motivation for realising a long-term concept.”

Jana Prausova, President of the Czech Society for Oncology

TABLE 5. ICP assessment of national cancer control plan, Czech Republic

Existence of national cancer control plan	Comprehensiveness of cancer control plan	Implementation framework for cancer control plan	Monitoring and evaluation of cancer control plan
Score 0-2	Score 0-3	Score 0-3	Score 0-2
 2	 2	 0	 0

Note: A higher score means better performance
Source: ICP

DATA AND RESEARCH

The country performs much better in the assessment of its population-based cancer registry (PBCR), joining Australia and South Korea in the top position globally for this indicator. The Czech national PBCR was started in 1976 and data collection is legally required. The registry publishes updated data online every month, which serves as a basis for the creation, realisation and evaluation of preventive medical programmes, as well as the evaluation of financial costs of oncological care.^{12,13} Professor Bartunkova sees this as one of the big achievements of the country: “the cancer registry functions very well and information is very easy to get.”

Indeed, the national registry is recognised as “high quality,”¹⁴ and based on the ICP assessment it covers a broad range of attributes, including: incidence, patient demographics, tumour characteristics, stage of disease, treatment and outcomes. It is also linked to the National Health Information System (NHIS), a nationwide information system of public administration. The NHIS collects and processes information from various public administration registries and tracks the cost-effectiveness of specific treatments, the quality of healthcare, and the capacity of the healthcare system.^{15,16}

There are signs of further improvements in this regard. Miroslav Specian, Board Member at the Hippokrates Endowment

Fund, refers to the development of an act on digitalisation of healthcare, currently in parliament, which can benefit patients directly. “I believe that this act of the digitisation of healthcare will allow much better care for patients. It will allow a better assessment of the scope of care provided to them, drug interactions between the medicines they are taking, so patients will benefit.”

The Czech Republic also attains a perfect score on the ICP’s indicator measuring the development of cancer research. Among a network of 18 Complex Oncology Centres,¹⁷ two national centres (associated with the Prague Motol Hospital and Masaryk Memorial Cancer Institute Brno) are designated as research facilities, as well as treatment facilities.^{18,19}

Knowledge is regarded as a strong area in the country. Mrs Cibulova refers to the long history of the cancer registry, but also the Institute of Health Information and Statistics of the Czech Republic (UZIS), which collects epidemiological data from hospitals for insurance companies. Professor Bartunkova also refers to the work of the Academy of Sciences and a local biotech company developing cancer drugs. In her view, even though there is no centralised government effort to promote research in this field, local institutions benefit from various funding.



The cancer registry functions very well and information is very easy to get.”

Jirina Bartunkova, Board of the Czech Society of Immunology; Head of the Department of Immunology of the 2nd Faculty of Medicine of Charles University in Prague & Motol University Hospital



The Czech Republic performs well in indicators measuring policy efforts for health promotion. It ranks 6th among the 29 countries in terms of tobacco control.

HEALTH PROMOTION

The Czech Republic performs well in indicators measuring policy efforts for health promotion. It ranks 6th among the 29 countries in terms of tobacco control. Based on WHO data, the country meets the following attributes: it has a policy or plan to reduce the burden of tobacco use, it complies with smoke-free regulations, it has health warning labels for tobacco packages in place and bans of some (but not all) forms of tobacco advertising. Efforts also include making cigarettes less affordable since 2008. Furthermore, the country attains a top score on policies for healthy lifestyles and diet. As reported by the WHO, there are operational policies to support healthy diets, physical activity and reduction of alcohol use. But there seems to be limited visibility of action in this field. Dr Dolezal notes: “there is no support for healthy lifestyles, no support for people to behave correctly so that they not become cancer patients.”

Indeed, promoting healthy lifestyles appears to need more attention. The country faces challenges in high prevalence of smoking and obesity, for example, and experts point to culture influencing people’s habits. “From the socialist times, the general feeling is that the state will take care of me, always,” notes Professor Bartunkova. “The personal responsibility should be emphasised.” Mrs Cibulova concurs and further adds: “people don’t appreciate health as the highest value; this is a legacy of the past.” Dr Prausova highlights the need for education: “I would say that the overall knowledge in society of the importance of a healthy lifestyle is an area open for improvement.”

“

From the socialist times, the general feeling is that the state will take care of me, always.”

Jirina Bartunkova, Board of the Czech Society of Immunology; Head of the Department of Immunology of the 2nd Faculty of Medicine of Charles University in Prague & Motol University Hospital

CARE DELIVERY

04

SCREENING AND EARLY DETECTION

The Czech Republic is one of the top countries in the index when it comes to immunisation as a form of prevention of some types of cancer. The country has a national HPV vaccination programme and a hepatitis B vaccination programme for infants; 97% of one-year olds received the three doses of the vaccine in 2019 according to WHO data. However, there are some challenges in maintaining these accomplishments. “In terms of HPV vaccination, unfortunately, it has been dropping; 10 years ago rates were 75% of 13-year olds, while now the rate is 60%, and we would like to have at least 80% vaccination rates,” notes Mrs Cibulova. “We organise awareness campaigns, but there is still misinformation about different side effects such as autism, which we have to explain.”

The country also obtains full marks on an indicator measuring the development of screening and early detection. National screening programmes are in place for cervical cancer and breast cancer. There is also availability of services like mammography, faecal occult blood test or faecal immunological test, and bowel cancer screening (by exam or colonoscopy) at the public primary healthcare level. According to Dr Prausova, “the Czech Republic is extraordinary in this sense, because the screening programmes are free; patients don’t have to pay.”



In terms of HPV vaccination, unfortunately, it has been dropping; 10 years ago rates were 75% of 13-year olds, while now the rate is 60%.”

Veronika Cibulova, General Secretary of the patient organization VERONICA

TABLE 6. ICP assessment of selected preventive actions, Czech Republic

National HPV vaccination programme	National screening programme for cervical cancer	National screening programme for breast cancer	Availability of mammography or clinical breast exam (CBE)	Availability of faecal occult blood test or faecal immunological test	Availability of bowel cancer screening by exam or colonoscopy
Score 0-1	Score 0-1	Score 0-1	Score 0-2	Score 0-1	Score 0-1
● 1	● 1	● 1	● 2	● 1	● 1

Note: A higher score means better performance
Source: ICP

Mrs Cibulova notes further areas of progress such as the introduction of HPV DNA testing (covered twice in a woman's life by health insurance) and BRCA1 or BRCA2 mutations genetic testing (follow up available for women who have the mutation). "Every patient with ovarian cancer should be tested for BRCA1/2, not only to choose the right treatment, but also that family members can find out if they have inherited the mutation and can undergo prophylactic surgery," she adds.

The results of these efforts are showing. "We now catch more tumours in time, the first clinical stages are treatable and more advanced stages can be slowed down, and we can improve both the quality and the length of life," notes Dr Prausova. According to Mrs Cibulova: "mortality in cervical cancer has dropped by 16% in the last 10 years and this is probably related to well functioning cervical screening."

Some challenges however persist. Professor Bartunkova mentions delays: "based on experience from my hospital, when you receive an invitation for screening, you might get an appointment in about half a year." Mrs Cibulova notes: "we have very good screening organised here for three cancer types, breast, cervical and colorectal cancer; they work very well, but there is still a group of around 40% of people who do not show up."

The role of doctors in promoting adoption is highlighted by Dr Prausova: "We actively encourage patients to take part in the screening programmes, we collaborate with GPs, and we evaluate the results regularly, to see if the programmes have an effect on the prevalence and treatment outcomes of these diagnoses." Mr Specian calls for more awareness raising on prevention by the government: "we feel that much is left to the charities and the private sector, and less is being done by the Ministry of Health."

SERVICE AVAILABILITY

The country is second in the group of 29 countries on the assessment of service availability and workforce. There is availability of radiotherapy in the public

health system and the country has the highest density of radiation oncologists, above Italy and Germany. The country has a weaker performance on an indicator measuring the capacity of radiotherapy equipment to meet patient need, based on which the country ranks 12th.²⁰ It is 5th among the 29 countries examined in terms of clinical oncologists per 1,000 population.

Availability of medicines included in the WHO essential cancer drug list is observed in the public health sector (cisplatin, fluorouracil, docetaxel, imatinib, rituximab and trastuzumab).²¹ These cancer medicines are registered with the State Institute for Drug Control (SIDC) and thus are fully reimbursed by health insurance companies.^{22,23}

In the Czech Republic, participation in the health insurance system is mandatory.²⁴ Dr Prausova notes there have been improvements in the approval of new expensive treatments in recent years, with the time it takes to reach patients being reduced. "We have greatly improved access to costly treatment methods of malign cancers, because we have been able to successfully agree on the terms with insurance companies," she adds.

Furthermore, the country is developing manufacturing capacity. "For the first time in the Czech Republic, there is a biotech company developing anticancer drugs." Notes Professor Bartunkova.

Thanks to the presence of Complex Oncology Centres (COCs), cancer care is deemed to be high quality in the country overall. But there are still some gaps to close in the care continuum. Professor Bartunkova notes: "Sometimes it takes months before people reach the COC and are properly diagnosed; so, this is a long timeline before reaching specialised care."

Another area for improvement is follow-up care, for instance, for childhood cancer survivors. "Care is very well functioning until patients get to the age of 18, then there is no systematic plan on when and where to take care of childhood cancer survivors and to follow long-term toxicity of chemotherapy, or other treatments," notes Professor Bartunkova.



Every patient with ovarian cancer should be tested for BRCA1/2, not only to choose the right treatment, but also that family members can find out if they have inherited the mutation and can undergo prophylactic surgery."

Veronika Cibulova, General Secretary of the patient organization VERONICA

Regarding palliative care, the ICP confirms that oral morphine is generally available in the public health system, while there is availability of community or home-based palliative care in the public health system. According to Mrs Cibulova, the development of palliative care services is still work in progress, although with improvements in the last years. “To name a successful example worth following at the General faculty hospital in Prague, we had the first palliative clinic established just last month,” she adds. Professor Bartunkova notes: “I see from the patients’ side that when they stopped the treatment, continuing care is not as good as specialised care. For example, hospice care, supportive care, it is very difficult to get some care on a long-term basis.”

CARE STANDARDS

The Czech Republic ranks 18th among the 29 countries based on an indicator measuring the development of clinical guidelines. There are evidence-based national guidelines for the management of major NCDs through a primary care approach. However, the study identified specific guidelines for only some priority cancers considered (breast, lung, prostate and colorectal cancer). The Czech Institute for Health Information and Statistics published clinical guidelines for the early stages of colorectal cancer in June 2019. In February 2020, it published clinical guidelines for the prevention, detection and treatment of prostate cancer. The Czech guidelines have been adapted from the German guidelines and guidelines for lung cancer are currently being prepared.^{25,26,27} Mrs Cibulova adds: “for gynaecological cancers, we have very good guidelines from the European Society of Gynaecological Oncology (ESGO) which have been endorsed and are broadly used in the Czech Republic.”

Professor Bartunkova notes that the use of guidelines is common, even if relying on international guidelines and not always local ones. “Every oncological society uses international guidelines, people are really using guidelines; why develop a national guideline when there is a good

international one?” she notes. Mr Specian agrees: “From my perspective, it is not necessarily a good thing to have our own guidelines and create everything from the beginning. Because it is costly, requires financing, and the clinical landscape is evolving, so it needs a lot of updating”.

The ICP assessment takes a slightly different view, and scores countries according to their use of national guidelines. The reason for this is the ICP’s focus on the need for validity and applicability, through guidelines that are tailored to specific population profiles and healthcare settings, in a local language that facilitates widespread use. “There is no mechanism to translate guidelines and to adopt them to local circumstances”, notes Dr Dolezal, referring to the situation in the Czech Republic. “The point is that every physician encountering oncology patients knows what to do.” It is possible to adapt guidelines if the evidence base is clear though, through the use of guideline adaptation tools such as ADAPTE and AGREE.

Lastly, regarding the development of patient-centred care, the country’s performance is also assessed as low (ranked 12th). In the Czech Republic, there is a network of 18 Complex Oncological Centres, which aim to provide patients with coordinated care of multidisciplinary teams, comprising of clinical oncologists, radiotherapists, diagnosticians, surgeons, nutritional specialists, psychologists and social workers.^{28,29} Mrs Cibulova notes however: “it depends in which hospital patients are treated, and not everybody has access to services such as supportive therapy, nutritionist care, physiotherapy, palliative care, psychological care.” Mr Specian agrees: “there are issues with the availability of psychotherapy for patients who were successfully treated, and of additional support, for example nutrition counselling.”

There are also views that lack of coordination through the health system is a barrier for patient-centred care approaches. “Very often the patient is moving from one physician to another,

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There is no mechanism to translate guidelines and to adopt them to local circumstances.”

Tomas Dolezal, Managing Director of the Institute of Health Economics and Technology Assessment (IHETA)

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Not everybody has access to services such as supportive therapy, nutritionist care, physiotherapy, palliative care, psychological care.”

Miroslav Specian, Board Member of the Hippokrates Endowment Fund

not being properly coordinated according to clinical guidelines,” notes Dr Dolezal. “Problems with coordination of treatment may end up with delays of treatment and access to curative technologies.” Mrs Cibulova is of a similar view: “The care here still is not patient-centred, revolving around the patient, making everything possible so that the patient feels safe though the journey, knows exactly what to do, has everything under the same roof.” Furthermore, no national clinical guidelines for long term follow up, rehabilitation and return to work were identified.

Bringing patients to the centre of health debates, there are cancer patient support organisations and they have been involved in cancer policy development and decision making. The website of the Czech Oncological Society lists 17 patients’ organisations.³⁰ There is also a patients’ board that functions as part of the Czech Department of Healthcare, and which includes 25 members, representing various conditions, including cancer. The board has regular meetings with the Department of Healthcare officials, and serves as an advisory body, issuing public statements on matters of legislation concerning patients and patient care.³¹ “We are gaining strength, but we are not yet where we strive to be: we do not have patients sitting in ethical committees yet,” notes Mrs Cibulova. “I would like to see patients having a say together with HCPs and other experts for example regarding the information consent: Is it understandable? Is it easy enough to read for an average patient? We have to work locally on incorporating patients’ opinions and experience into clinical trials.” Mr Specian notes: “Historically, we have less civil society than in western Europe. And it is still evolving.”



Problems with coordination of treatment may end up with delays of treatment and access to curative technologies.

HEALTH SYSTEM AND GOVERNANCE

05

POLITICAL WILL

The Czech Republic is ranked 18th (a low performance) based on the assessment of political will. This is based on indicators of spending in the healthcare sector, and institutional development. The country is ranked 12th based on a metric of magnitude and growth of health expenditure (out of total government expenditure) in the past 10 years. It is ranked 16th based on the change of out-of-pocket health expenditure (out of current health expenditure) in the past 10 years. The Covid-19 emergency creates new funding priorities. "There is a national plan for renewal, but healthcare is only about 11 percent of this plan. So there are not enough funds in healthcare," notes Dr Prausova. "However, it is also about using the money that we have meaningfully."

As cancer treatments become more sophisticated, it is expected that investment should continue to grow. Professor Bartunkova notes: "What I can see from the hospital budget is that the expenses for oncology care are increasing substantially in the past years. Especially as a result of the introduction of new treatments such as checkpoint inhibitors, other monoclonal antibodies, CAR-T; one treatment is worth several million crowns." Dr Dolezal highlights the value of better cancer planning: "As there is no mid-term plan for investment in cancer care, we don't know what the budget for cancer is, even for next year."

Based on data from WHO, the country achieves 76% of universal coverage of essential health services (ranked 16th). Professor Bartunkova notes: "Generally, healthcare in the Czech Republic is at a very good level; access to healthcare is good, the majority of healthcare is free of charge. Of course, we pay taxes, but it is free [at point of use]. It is comparable to France, Italy, etc."

An indication of institutional development, there is a Health Technology Assessment (HTA) mechanism independent from payers and providers. However, assessment is limited only to outpatient medicines. Medicines for hospital use and medical devices, for example, are not included in the HTA process by the State Institute for Drug Control (SUKL). Dr Dolezal notes: "we have an HTA process for new drugs but not for other technologies. This is a long-term weakness".

INFRASTRUCTURE

Infrastructure is a strong area for the Czech Republic as it's ranked 2nd out of the 29 countries, just below Germany. It is first globally based on surgeons per 1,000 population (0.80) and 9th on density of skilled health professionals (physicians, nurses and midwives); 121 per 10,000 population. Professor Bartunkova sees cancer centres as one area of success: "the most important achievement is the establishment of about 10 Complex Oncology Centres (COCs) in the country with a population of 10 million inhabitants, which is enough in terms of density of treatment facilities for a country of this size." Dr Prausova notes: "we are very good in our organisation of oncological care. We have several regional and two national centres. The national centres specialise in more atypical cancer diagnoses, or in paediatric oncological diseases."

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We have an HTA process for new drugs but not for other technologies. This is a long-term weakness.”

Tomas Dolezal, Managing Director of the Institute of Health Economics and Technology Assessment (IHETA)

Dr Dolezal stresses the need for greater coordination across care levels: “the focus is on top-level specialised cancer care, and this seems to be fine; but top-level specialists are taking care of a portion of the patients, the rest of the patients are in different outpatient clinics, in primary care, and so on.” Dr Prausova notes the state of facilities is not always the best. “Prague hospitals are not in a good state of repair and new buildings are not being built here for some reason.”

INTERSECTORAL ACTION AND GOVERNANCE

There are national policies for health that address at least two priority determinants of health and the Czech Republic is ranked 11th in the intersectoral action and governance indicator. Although there is no national framework for intersectoral cooperation on health, there are programmes for ministerial collaboration addressing disease prevention.³² For instance, the Czech Ministry of Healthcare and the Ministry of Education have a collaborative programme addressing lifestyles of children and adolescents, specifically lack of physical activity. The programme is designed to educate children and teenagers on how to adapt their lifestyles so as to prevent obesity and diseases stemming from it.³³

The Ministry of Healthcare has also collaborated with the Ministry of Education on other projects, such as a series of seminars on obesity among children and adolescents, and healthy eating habits.³⁴

A measure of government effectiveness, the country is ranked 13th for control of corruption based on public perceptions. Even though the country is in the top half of the global scale, performance is one of the weakest among high-income countries included. Transparency and accountability are important factors needed to undertake effective health reforms that benefit patients ultimately.

TABLE 7. ICP assessment of selected governance aspects, Czech Republic

Health technology assessment	Intersectoral action for health and health equity
Score 0-2	Score 0-1
● 1	● 1

Note: A higher score means better performance
 Source: ICP

CONCLUSION

The Czech Republic faces an important cancer burden, but the country's response to cancer is strong so far.

Some of the country's strengths include: a well-established, high-quality population-based cancer registry providing a foundation for effective cancer tracking and action, and high-quality Complex Oncology Centres offering specialised care, some with research capabilities. There is also a wide reach of immunisation, screening services and treatments thanks to encompassing health insurance available to the population. Infrastructure is a particular strength as is the availability of skilled healthcare professionals.

The most visible weakness is regarding a national cancer control plan. Even though a plan exists, it is lacking details on implementation, monitoring and evaluation. An initiative by the Czech Oncological Society, the current plan lacks the leadership of a government agency, which could be vital to allocate resources. A new plan is currently in the making, and

it will be important that it achieves the backing of the health authorities and that it includes the voices of patients. In order to create a cancer control programme that is well coordinated and stable, it should clarify elements such as funding, leadership, timelines, targets, as well as a monitoring and evaluation framework.

While care is regarded as high quality, aspects such as referral to specialised care can be slow, while follow-up services for children survivors and palliative care are not provided in a standardised way. Patient-centred approaches are also to be implemented more consistently across the healthcare system. These are areas that could be emphasised in the new cancer plan. Healthcare funding could be boosted to catch up with the rising cancer demands while the remit of the HTA mechanism could be expanded to cover medicines for hospital use and medical devices.

ENDNOTES

1. IHME, Global Health Data Exchange. Available from: <http://ghdx.healthdata.org/gbd-results-tool>
2. IARC, Cancer Today 2020. Available from: <https://gco.iarc.fr/today/home>
3. CIA, World Factbook. Available at: <https://www.cia.gov/the-world-factbook/field/median-age/country-comparison>
4. European Commission, Czech Republic - Population: Demographic Situation, Languages and Religions, 2021. Available from: https://eacea.ec.europa.eu/national-policies/eurydice/content/population-demographic-situation-languages-and-religions-21_en
5. IARC, Cancer Tomorrow. Available from: <https://gco.iarc.fr/tomorrow/en>
6. IARC, Cancer Today 2020. Available from: <https://gco.iarc.fr/today/home>
7. The Economist Intelligence Unit, Cancer Preparedness in Latin America: the need to build on recent progress, 2019. Available from: <https://worldcancerinitiative.economist.com/pdf/Roche-cancer-preparedness-in-latin-america/CANCER%20PREPAREDNESS%20IN%20LATAM.pdf>
8. Czech Oncological Society, National Cancer Control Programme (Národní onkologický program), 2013. Available from: <https://www.onconet.cz/index.php?pg=narodni-onkologicky-program-plne-zneni>
9. Linkos.cz, List of entities that have signed up for the National Oncology Program of the Czech Republic, 2021. Available from: <https://www.linkos.cz/narodni-onkologicky-program/prihlaska-k-nop/seznam-subjektu-kttere-se-prihlasily-k-narodnimu-onkologickemu-programu-cr/>
10. Medical Tribune CZ, Will the National Cancer Program be a government priority?, 2019. Available from: <https://www.tribune.cz/clanek/44996-bude-narodni-onkologicky-program-vladni-prioritoucv>
11. The National Cancer Control Programme of the Czech Republic (Národní onkologický program České republiky). Available from: https://www.linkos.cz/files/pro_odborniky/nop/Narodni-onkologicky-program---eske-republiky-2021--upraveno-vyborem---OS.pdf
12. Linkos.cz, The National Cancer Registry (Národní onkologický registr), 2021. Available from: <https://www.linkos.cz/lekar-a-multidisciplinari-tym/ekonomika/sledovani-a-predikce-dat-v-onkologii/narodni-onkologicky-registr/>
13. Institute of Health Information and Statistics of the Czech Republic, The National Cancer Registry. Available from: <https://www.uzis.cz/index.php?pg=registry-sber-dat--narodni-zdravotni-registry--narodni-onkologicky-registr#o-registru>
14. American Cancer Society, The Cancer Atlas. Available from: <https://canceratlas.cancer.org/data/compare/>
15. Institute of Health Information and Statistics of the Czech Republic, National Health Information System (Národní zdravotní informační systém). Available from: <https://www.uzis.cz/index.php?pg=nzis>
16. Ministry of Health, The National Health Information System has Been Approved by Senate (Národní zdravotní informační systém schválil Senát), 2016. Available from: <https://www.mzcr.cz/tiskove-centrum-mz/narodni-zdravotnicky-informacni-system-schvalil-senat/>
17. Linkos.cz, The National Cancer Network (Národní síť). Available from: <https://www.linkos.cz/lekar-a-multidisciplinari-tym/narodni-onkologicka-sit/>
18. University Hospital in Motol, Oncology Clinic of the 2nd Medical Department of Charles University and Motol Hospital in Prague (Onkologická klinika 2. lékařské fakulty Karlovy Univerzity a Nemocnice Motol). Available from: <https://www.fnmotol.cz/kliniky-a-oddeleni/cast-pro-dospеле/radioterapeuticko-onkologicke-oddeleni/>
19. The Masaryk Memorial Cancer Institute (Masarykův onkologický ústav). Available from: <https://www.mou.cz/>
20. Calculated by the EIU based on the number of radiotherapy machines available (including linear accelerators and Cobalt-60 from public and private sectors), divided by the number of radiotherapy machines required.
21. Based on information from a public hospital in the capital.
22. The State Institute for Drug Control. (Státní ústav pro kontrolu léčiv). Available from: <https://www.sukl.cz/>
23. VZP, 10 + 1 questions about health insurance reimbursements for seriously ill patients according to Section 16 (10 + 1 otázek a odpovědí týkajících se úhrady zdravotní péče pro těžce nemocné pacienty dle paragrafu 16), 2017. Available from: <https://www.vzp.cz/o-nas/aktuality/10-1-otazek-a-odpovedi-tykajicich-se-uh rady-zdravotni-pece-pro-tezce-nemocne-pacienty-dle-16>
24. Health Insurance Bureau (Kancelář zdravotního pojištění), Health insurance system in CZ, 2016. Available from: <https://www.kancelarzp.cz/en/links-info-en/health-insurance-system-in-cz>
25. Clinical Advisory Guidelines for the Timely Detection, Diagnostics and Treatment of Various Stadiums of Prostate Cancer (Klinické doporučené postupy pro časnou detekci, diagnostiku a léčbu jednotlivých stádií karcinomu prostaty), 2020. Available from: <https://kdp.uzis.cz/res/guideline/kdp-pro-casnou-detekci-diagnostiku-lecbu-jednotlivych-stadii-karcinomu-prostaty-final.pdf>
26. Unfinished Clinical Guidelines: Lung Cancer (Rozpracované klinické postupy: Karcinom plic). Available from: <https://kdp.uzis.cz/index.php?pg=kdp&id=42>
27. Clinical Advisory Guidelines for Early Stages of Colorectal Cancer - Clinical Stages 1 and 2 - Diagnostics and Treatment (Klinické doporučené postupy pro časný kolorektální karcinom - klinická stádia 1 a 2 - diagnostika a léčba), 2019. Available from: <https://kdp.uzis.cz/res/guideline/casny-kolorektalni-karcinom-klinicka-stadia-i-ii-diagnostika-lecba-final.pdf>
28. Linkos.cz, The doctor and the multidisciplinary team (Lékař a multidisciplinární tým). Available from: <https://www.linkos.cz/lekar-a-multidisciplinari-tym/narodni-onkologicka-sit/>
29. Linkos.cz, Treatment: the multidisciplinary team (Léčba: multidisciplinární tým). Available from: <https://www.linkos.cz/pacient-a-rodina/lecba/multidisciplinari-tym/>
30. Linkos.cz, The Czech Oncological Society: Patients' Organisations (Česká onkologická společnost: pacientské organizace). Available from: <https://www.linkos.cz/pacient-a-rodina/pomoc-v-nemoci/pacientske-organizace>
31. Ministry of Health, Patients' Organisations and the Patients' Board. Available from: <https://pacientskeorganizace.mzcr.cz/index.php?pg=pacientske-organizace--pacientska-rada>
32. Alexa J et al., Czech Republic: Health system review. Health Systems in Transition, 2015; 17(1):1-165. Available from: https://www.euro.who.int/__data/assets/pdf_file/0005/280706/Czech-HIT.pdf
33. Ministry of Education, The Ministries of Health and Education Want to Make Children Move (Ministerstva školství a zdravotnictví chtějí rozhybat děti). Available from: <https://www.msmt.cz/ministerstvo/novinar/rezorty-zdravotnictvi-a-skolstvi-chteji-spolecne-rozhybat>
34. Ministry of Education, The Ministry of Education Wants to Intensify the Trend of Healthy Eating Among Schoolchildren (Ministerstvo školství chce zintenzivnit trend zdravého stravování školáků), 2012. Available from: <https://www.msmt.cz/ministerstvo/novinar/ministerstvo-skolstvi-chce-zintenzivnit-trend-zdraveho>

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