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TROCHA SCIENTOMETRIE – PŘEHLED PUBLIKACÍ, METODIK A DALŠÍCH VÝSTUPŮ Z NZIS

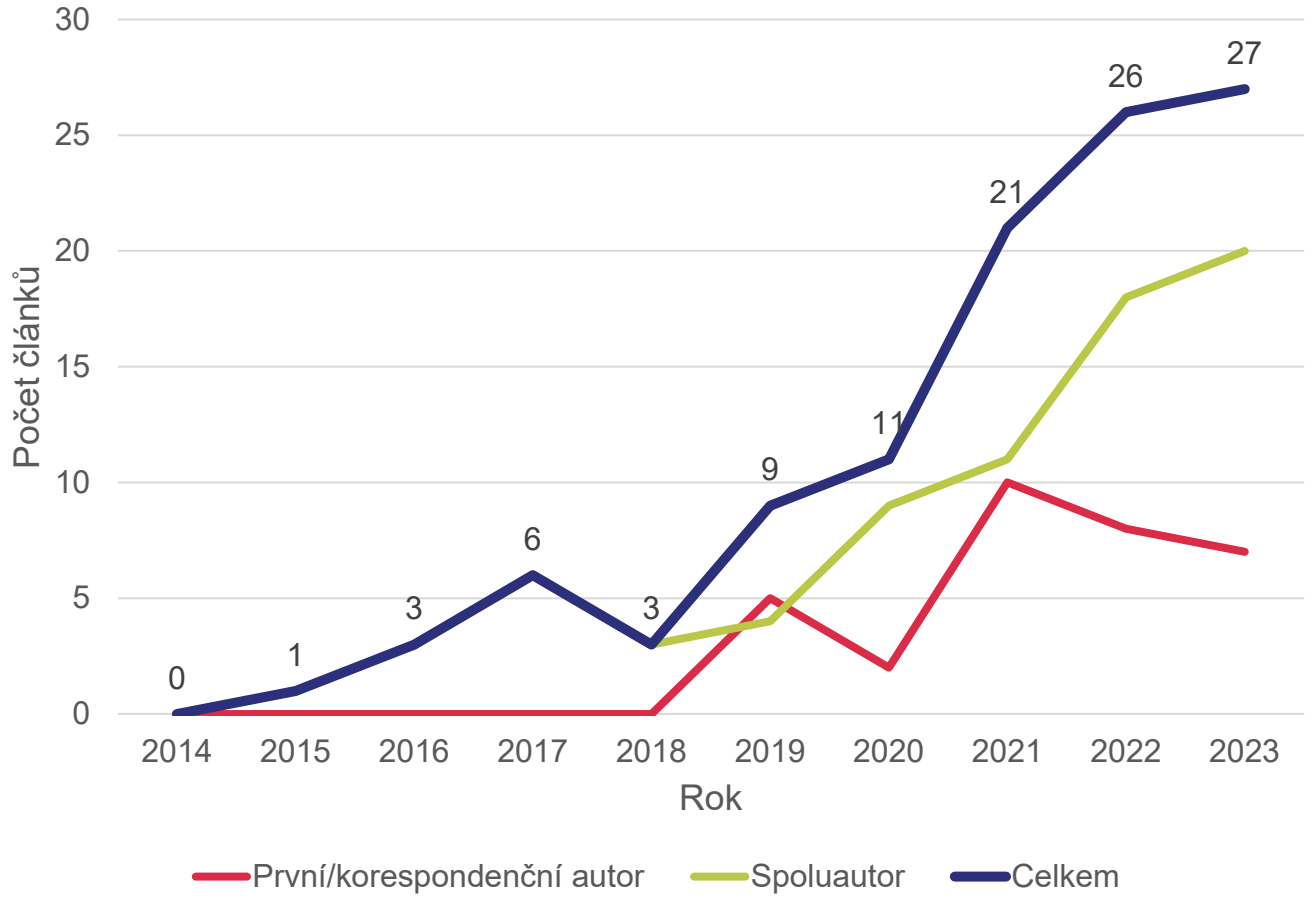
Jakub Gregor

PUBLIKAČNÍ ČINNOST ÚZIS ČR

… je pestrá a bohatá

Odborné články v časopisech s IF	Metodiky	Datové sady a souhrny
Odborné články v ostatních časopisech	Monografie	Interaktivní vizualizace a infografiky
Statistické ročenky	Odborná doporučení	?

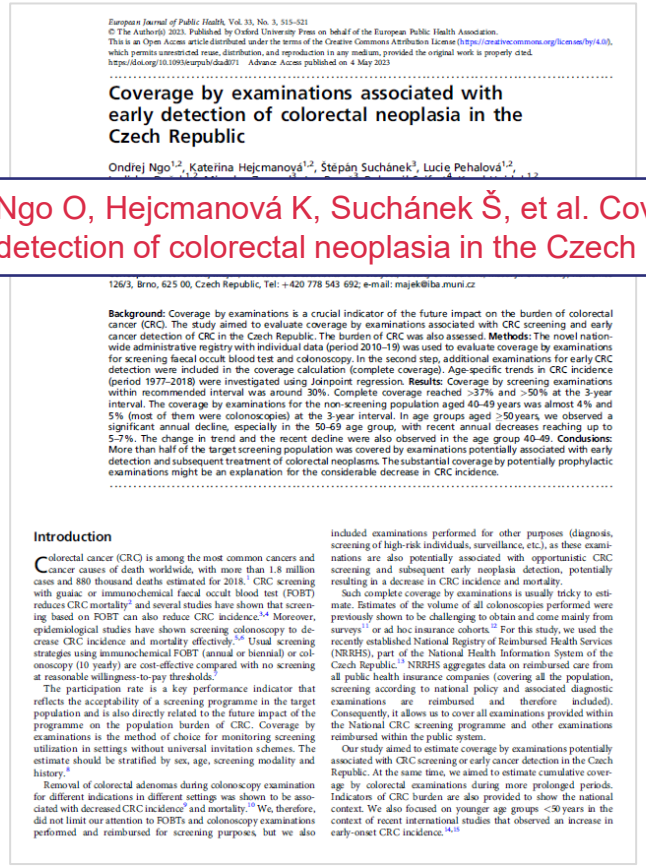
ODBORNÉ ČLÁNKY V ČASOPISECH S IF



2014–2023
Celkem: 107
První/korespondenční autor: 32
Spoluautor: 75

2019–2023
Celkem: 94
První/korespondenční autor: 32
Spoluautor: 62

PREVENCE, SCREENINGOVÉ PROGRAMY



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Coverage by examinations associated with early detection of colorectal neoplasia in the Czech Republic

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Background: Coverage by examinations is a crucial indicator of the future impact on the burden of colorectal cancer (CRC). The study aimed to evaluate coverage by examinations associated with CRC screening and early cancer detection of CRC in the Czech Republic. The burden of CRC was also assessed. **Methods:** The novel nationwide administrative registry with individual data (period 2010–19) was used to evaluate coverage by examinations for screening faecal occult blood test and colonoscopy. In the second step, additional examinations for early CRC detection were included in the coverage calculation (complete coverage). Age-specific trends in CRC incidence (period 1977–2018) were investigated using Joinpoint regression. **Results:** Coverage by screening examinations within recommended interval was around 30%. Complete coverage reached >37% and >50% at the 3-year interval. The coverage by examinations for the non-screening population aged 40–49 years was almost 4% and 5% (most of them were colonoscopies) at the 3-year interval. In age groups aged ≥50 years, we observed a significant annual decline, especially in the 50–69 age group, with recent annual decreases reaching up to 5–7%. The change in trend and the recent decline were also observed in the age group 40–49. **Conclusions:** More than half of the target screening population was covered by examinations potentially associated with early detection and subsequent treatment of colorectal neoplasms. The substantial coverage by potentially prophylactic examinations might be an explanation for the considerable decrease in CRC incidence.

Introduction

Colorectal cancer (CRC) is among the most common cancers and cancer causes of death worldwide, with more than 1.8 million cases and 880 thousand deaths estimated for 2018.[1] CRC screening with guaiac or immunochemical faecal occult blood test (FOBT) reduces CRC mortality[2] and several studies have shown that screening based on FOBT can also reduce CRC incidence.[3,4] Moreover, epidemiological studies have shown screening colonoscopy to decrease CRC incidence and mortality effectively.[5,6] Usual screening strategies using immunochemical FOBT (annual or biennial) or colonoscopy (10 yearly) are cost-effective compared with no screening at reasonable willingness-to-pay thresholds.[7]

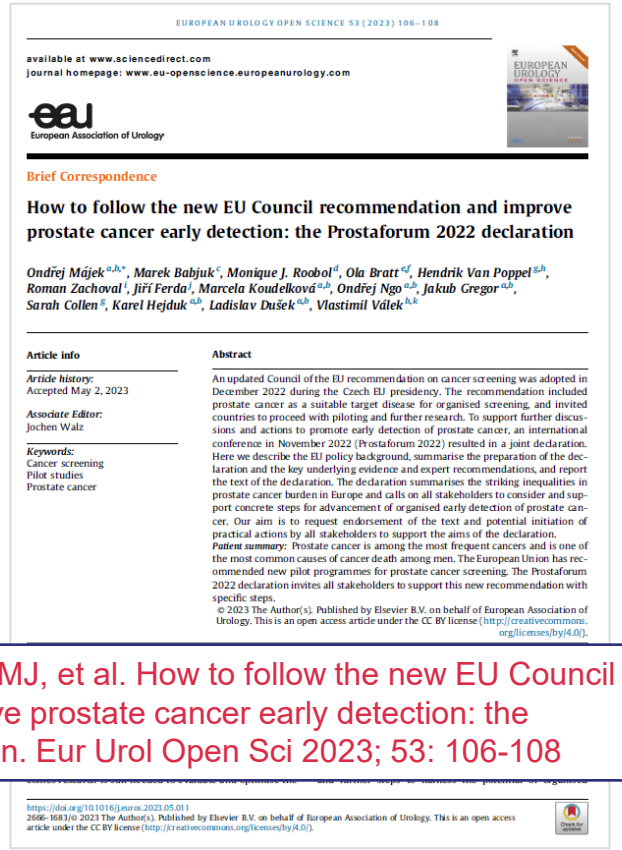
The participation rate is a key performance indicator that reflects the acceptability of a screening programme in the target population and is also directly related to the future impact of the programme on the population burden of CRC. Coverage by examinations is the method of choice for monitoring screening utilization in settings without universal invitation schemes. The estimate should be stratified by sex, age, screening modality and history.[8]

Removal of colorectal adenomas during colonoscopy examination for different indications in different settings was shown to be associated with decreased CRC incidence[9] and mortality.[10] We, therefore, did not limit our attention to FOBTs and colonoscopy examinations performed and reimbursed for screening purposes, but we also included examinations performed for other purposes (diagnosis, screening of high-risk individuals, surveillance, etc.), as these examinations are also potentially associated with opportunistic CRC screening and subsequent early neoplasia detection, potentially resulting in a decrease in CRC incidence and mortality.

Such complete coverage by examinations is usually tricky to estimate. Estimates of the volume of all colonoscopies performed were previously shown to be challenging to obtain and come mainly from surveys[11] or ad hoc insurance cohorts.[12] For this study, we used the recently established National Registry of Reimbursed Health Services (NRRHS), part of the National Health Information System of the Czech Republic.[13] NRRHS aggregates data on reimbursed care from all public health insurance companies (covering all the population, screening according to national policy and associated diagnostic examinations are reimbursed and therefore included). Consequently, it allows us to cover all examinations provided within the National CRC screening programme and other examinations reimbursed within the public system.

Our study aimed to estimate coverage by examinations potentially associated with CRC screening or early cancer detection in the Czech Republic. At the same time, we aimed to estimate cumulative coverage by colorectal examinations during more prolonged periods. Indicators of CRC burden are also provided to show the national context. We also focused on younger age groups <50 years in the context of recent international studies that observed an increase in early-onset CRC incidence.[14,15]

Ngo O, Hejcmanová K, Suchánek Š, et al. Coverage by examinations associated with early detection of colorectal neoplasia in the Czech Republic. Eur J Public Health 2023; 33(3): 515-521.



EUROPEAN UROLOGY OPEN SCIENCE 53 (2023) 106–108

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European Association of Urology

Brief Correspondence

How to follow the new EU Council recommendation and improve prostate cancer early detection: the Prostaforum 2022 declaration

Ondřej Májek[a,b,], Marek Babjuk[c], Monique J. Roobol[d], Ola Bratt[e,f], Hendrik Van Poppel[g,h], Roman Zachoval[i], Jiří Ferda[j], Marcela Koudelková[a,b], Ondřej Ngo[a,b], Jakub Gregor[a,b], Sarah Collen[g], Karel Hejduk[a,b], Ladislav Dušek[a,b], Vlastimil Válek[b,k]*

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Abstract

An updated Council of the EU recommendation on cancer screening was adopted in December 2022 during the Czech EU presidency. The recommendation included prostate cancer as a suitable target disease for organised screening, and invited countries to proceed with piloting and further research. To support further discussions and actions to promote early detection of prostate cancer, an international conference in November 2022 (Prostaforum 2022) resulted in a joint declaration. Here we describe the EU policy background, summarise the preparation of the declaration and the key underlying evidence and expert recommendations, and report the text of the declaration. The declaration summarises the striking inequalities in prostate cancer burden in Europe and calls on all stakeholders to consider and support concrete steps for advancement of organised early detection of prostate cancer. Our aim is to request endorsement of the text and potential initiation of practical actions by all stakeholders to support the aims of the declaration.

Patient summary: Prostate cancer is among the most frequent cancers and is one of the most common causes of cancer death among men. The European Union has recommended new pilot programmes for prostate cancer screening. The Prostaforum 2022 declaration invites all stakeholders to support this new recommendation with specific steps.

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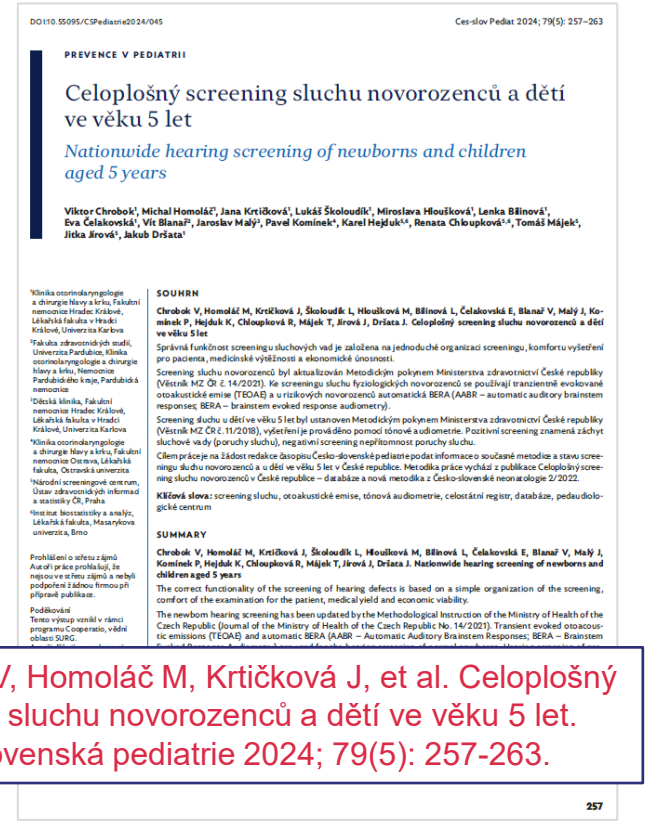
2666-1683/

Májek O, Babjuk M, Roobol MJ, et al. How to follow the new EU Council recommendation and improve prostate cancer early detection: the Prostaforum 2022 declaration. Eur Urol Open Sci 2023; 53: 106-108



DO110.55095/CSPediatrie2024/045 Čes-slov Pediat 2024; 79(5): 257–263

PREVENCE V PEDIATRII

Celoplošný screening sluchu novorozenců a dětí ve věku 5 let

Nationwide hearing screening of newborns and children aged 5 years

Viktor Chrobok[1], Michal Homoláč[2], Jana Krtičková[1], Lukáš Školoudík[1], Miroslava Hloušková[1], Lenka Bělinová[1], Eva Čelakovská[1], Vít Blanař[2], Jaroslav Malý[3], Pavel Komínek[4], Karel Hejduk[4,5], Renata Chloupková[5,6], Tomáš Májek[2], Jitka Jirová[1], Jakub Dršata[4]

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[6]Institut biostatistiky a analýz, Lékařská fakulta, Masarykova univerzita, Brno

Prohlášení o střetu zájmů
Autoři práce prohlašují, že nejsou ve střetu zájmů a nebyli podpořeni žádnou firmou při přípravě publikace.

Poděkování
Tento výstup vznikl v rámci programu Cooperatio, vědní oblasti SURG.

SOUHRN

Chrobok V, Homoláč M, Krtičková J, Školoudík L, Hloušková M, Bělinová L, Čelakovská E, Blanař V, Malý J, Komínek P, Hejduk K, Chloupková R, Májek T, Jirová J, Dršata J. Celoplošný screening sluchu novorozenců a dětí ve věku 5 let

Správná funkčnost screeningu sluchových vad je založena na jednoduché organizaci screeningu, komfortu vyšetření pro pacienta, medicínské výtěžnosti a ekonomické únosnosti.

Screening sluchu novorozenců byl aktualizován Metodickým pokynem Ministerstva zdravotnictví České republiky (Věstník MZ ČR č. 14/2021). Ke screeningu sluchu fyziologických novorozenců se používají tranzientně evokované otoakustické emise (TEOAE) a u rizikových novorozenců automatická BERA (AABR – automatic auditory brainstem response; BERA – brainstem evoked response audiometry).

Screening sluchu u dětí ve věku 5 let byl ustanoven Metodickým pokynem Ministerstva zdravotnictví České republiky (Věstník MZ ČR č. 11/2018), vyšetření je prováděno pomocí tónové audiometrie. Pozitivní screening znamená záchyt sluchové vady (poruchy sluchu), negativní screening nepřítomnost poruchy sluchu.

Cílem práce je na žádost redakce časopisu Česko-slovenské pediatrie podat informace o současné metodice a stavu screeningu sluchu novorozenců a u dětí ve věku 5 let v České republice. Metodika práce vychází z publikace Celoplošný screening sluchu novorozenců v České republice – databáze a nová metodika z Česko-slovenské neonatologie 2/2022.

Klíčová slova: screening sluchu, otoakustické emise, tónová audiometrie, celostátní registr, databáze, pedaudiologické centrum

SUMMARY

Chrobok V, Homoláč M, Krtičková J, Školoudík L, Hloušková M, Bělinová L, Čelakovská E, Blanař V, Malý J, Komínek P, Hejduk K, Chloupková R, Májek T, Jirová J, Dršata J. Nationwide hearing screening of newborns and children aged 5 years

The correct functionality of the screening of hearing defects is based on a simple organization of the screening, comfort of the examination for the patient, medical yield and economic viability.

The newborn hearing screening has been updated by the Methodological Instruction of the Ministry of Health of the Czech Republic (Journal of the Ministry of Health of the Czech Republic No. 14/2021). Transient evoked otoacoustic emissions (TEOAE) and automatic BERA (AABR – Automatic Auditory Brainstem Responses; BERA – Brainstem

Chrobok V, Homoláč M, Krtičková J, et al. Celoplošný screening sluchu novorozenců a dětí ve věku 5 let. Česko-slovenská pediatrie 2024; 79(5): 257-263.

ZHOUBNÉ NOVOTVARY

Cancer Epidemiology 72 (2021) 101929

Contents lists available at ScienceDirect

Cancer Epidemiology

journal homepage: www.elsevier.com/locate/canep

Significant current epidemiological trend: Haematological malignancies as subsequent primary tumours in cancer patients

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ARTICLE INFO

Keywords:
Haematological malignancies
Subsequent primary tumour
Time trends
Standardised incidence ratio
Survival

ABSTRACT

Background: Numbers of patients who develop subsequent primary tumours have markedly increased recently. This study aimed to carry out a comprehensive analysis documenting the risk of incidence of subsequent haematological malignancies.

Methods: The Czech National Cancer Registry was the main data source, containing records of 126,822 haematological malignancies diagnosed in the period 1977–2016. Subsequent haematological malignancies were identified according to IACR rules. Joinpoint regression was employed to assess the time trends. The risk of development of subsequent haematological malignancy was evaluated by the standardised incidence ratio. The Kaplan–Meier curves were used to assess the differences in survival.

Results: Age-standardised incidence of subsequent haematological malignancies increased from 0.5 in 1977 to 9.1 in 2016. In 1992, there was a significant change in the trend: a sharp increase by 7.7 % annually was revealed thereafter. The risk of development of a haematological malignancy was approximately 1.5 times higher in persons with history of any cancer than in the general Czech population. Patients with haematological malignancies – mainly myelodysplastic syndromes, polycythaemia vera and non-Hodgkin lymphoma – were shown to be at the highest risk of developing a subsequent haematological malignancy. While the median survival following a first haematological malignancy was 2.3 years, it was only 1.1 years for subsequent haematological malignancies ($p < 0.001$).

Conclusions: Our study identified the highest-risk diagnoses in terms of development of subsequent haematological malignancy. The results might be useful to set up correctly follow-up procedures from which cancer patients could benefit.

Standardised incidence ratio; SPT, Subsequent primary tumour; t-AML, Therapy-related myeloid leukaemia; t-MDS, Therapy-related myelodysplastic syndromes; t-MN, Therapy-related myeloid neoplasms.

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Pehalová L, Krejčí D, Halámková J, et al. Significant current epidemiological trend: Haematological malignancies as subsequent primary tumours in cancer patients. Cancer Epidemiol 2021; 72: 101929.

Cancer Epidemiology 69 (2020) 101848

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Cancer Epidemiology

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Childhood cancer epidemiology in the Czech Republic (1994–2016)

Denisa Krejci [a,b,*], Michaela Zapletalova [b], Ivana Svobodova [a,b], Viera Bajciova [c], Peter Mudry [c], Vratislav Smelhaus [d], Jaroslav Sterba [c], Jan Stary [d], Riccardo Capocaccia [e], Ladislav Dusek [a,b]

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ARTICLE INFO

Keywords:
Childhood cancer
Incidence
Mortality
Survival
Czech Republic

ABSTRACT

Background: The knowledge of cancer burden in the population, its time trends and the possibility of international comparison is an important starting point for cancer control programmes. Our study aimed to evaluate trends in childhood cancer epidemiology of patients aged 0–14 years in the period 1994–2016 in the Czech Republic.

Methods: Data on childhood cancers have been obtained from the Czech National Cancer Registry. These data were validated using the clinical database of childhood cancer patients and combined with data from death certificates. Incidence and mortality trends were assessed by the joinpoint regression method. The life tables method was used to calculate the overall age-standardised five-year survival.

Results: The incidence trend was stable; the age-standardised (world) cancer incidence – ASR (W) – was 173.7 per 1 million children in the period 1994–2016. However, there was apparent significant decrease in mortality: ASR (W) dropped from 58.1 per 1 million children in 1994 to 21.4 per 1 million children in 2016. The overall five-year survival increased over time by 10 %. Statistically significant improvements in survival were observed in patients with lymphoid leukaemia, astrocytomas, neuroblastomas, osteosarcomas and rhabdomyosarcomas.

Conclusion: Such a relevant increase in survival rates, and therefore also a decrease in mortality rates in the Czech Republic, is most likely due to improvements in diagnostic and treatment methods since the 1990s, which were facilitated by the concentration of childhood cancer patients in children's cancer centres.

1. Introduction

Among European countries, the Czech Republic reports relatively high rates of childhood cancer (i.e. cancer diagnosed in patients aged 0–14 years) with an age-standardised (world) incidence rate – ASR (W) – per 1 million children (165.7 in the period 1990–2012) similar to that in Norway (165.2; 1990–2013) or in Portugal (164.6; 1991–2012) [1]. In European countries the trends in age-standardised childhood cancer incidence show statistically significant increases in the period 1991–2010 (AAPC = 0.5; 95 % CI: 0.4, 0.7) [2]. A similar trend was observed in the Czech Republic in the period 1994–2014 (AAPC = 0.6; 95 % CI: 0.0, 1.1), however, the latest trends in the period 1994–2016 were stable [3,4].

Although the number of children's deaths from cancer has decreased in most European countries – as reported in a study by Bosetti et al., which pointed out between 1990–1994 and 2005–2007 a decrease in mortality from 52.5 to 35.1 per 1 million boys and from 43.2 to 28.0 per 1 million girls in the European Union – cancer is still the second most common cause of death in children in Europe (after injuries); the same situation has been reported in the United States [5–7]. In the Czech

Abbreviations: AAPC, average annual percentage change; ASR (E), age standardised rate (European); ASR (W), age standardised rate (World); CI, confidence interval; CNCR, Czech national cancer registry; CNS, central nervous system; CONCORD, cancer survival in five continents; DCO, death certificate only; EUROCARE, European cancer registries; ICCC-3, international classification of childhood cancer, 3rd edition; ICD-10, international classification of diseases, 10th revision; ICD-O, international classification of disease for oncology; MV, microscopically verified.

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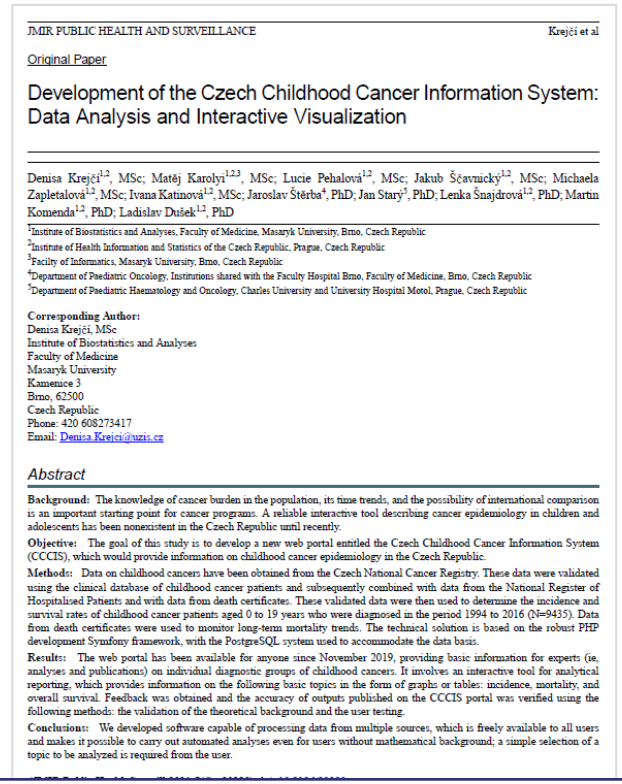
Krejčí D, Zapletalová M, Svobodová I, et al. Childhood cancer epidemiology in the Czech Republic (1994-2016). Cancer Epidemiol 2020; 69: 101848.



JMIR PUBLIC HEALTH AND SURVEILLANCE — Krejčí et al

Original Paper

Development of the Czech Childhood Cancer Information System: Data Analysis and Interactive Visualization

Denisa Krejčí[1,2], MSc; Matěj Karolyi[1,2,3], MSc; Lucie Pehalová[1,2], MSc; Jakub Ščavnický[1,2], MSc; Michaela Zapletalová[1,2], MSc; Ivana Katinová[1,2], MSc; Jaroslav Štěrba[4], PhD; Jan Starý[5], PhD; Lenka Šnajdrová[1,2], PhD; Martin Komenda[1,2], PhD; Ladislav Dušek[1,2], PhD

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Abstract

Background: The knowledge of cancer burden in the population, its time trends, and the possibility of international comparison is an important starting point for cancer programs. A reliable interactive tool describing cancer epidemiology in children and adolescents has been nonexistent in the Czech Republic until recently.

Objective: The goal of this study is to develop a new web portal entitled the Czech Childhood Cancer Information System (CCCIS), which would provide information on childhood cancer epidemiology in the Czech Republic.

Methods: Data on childhood cancers have been obtained from the Czech National Cancer Registry. These data were validated using the clinical database of childhood cancer patients and subsequently combined with data from the National Register of Hospitalised Patients and with data from death certificates. These validated data were then used to determine the incidence and survival rates of childhood cancer patients aged 0 to 19 years who were diagnosed in the period 1994 to 2016 (N=9435). Data from death certificates were used to monitor long-term mortality trends. The technical solution is based on the robust PHP development Symfony framework, with the PostgreSQL system used to accommodate the data basis.

Results: The web portal has been available for anyone since November 2019, providing basic information for experts (ie, analyses and publications) on individual diagnostic groups of childhood cancers. It involves an interactive tool for analytical reporting, which provides information on the following basic topics in the form of graphs or tables: incidence, mortality, and overall survival. Feedback was obtained and the accuracy of outputs published on the CCCIS portal was verified using the following methods: the validation of the theoretical background and the user testing.

Conclusions: We developed software capable of processing data from multiple sources, which is freely available to all users and makes it possible to carry out automated analyses even for users without mathematical background; a simple selection of a topic to be analyzed is required from the user.

Krejčí D, Karolyi M, Pehalová L, et al. Development of the Czech Childhood Cancer Information System: Data Analysis and Interactive Visualization. JMIR Public Health and Surveill 2021; 7(6): e23990.

EPIDEMIE COVID-19 – MODELOVÁNÍ, EPIDEMIOLOGIE

Open access Original research

BMJ Open Covidogram as a simple tool for predicting severe course of COVID-19: population-based study

Jiri Jarkovsky,[1,2] Klara Benesova,[1,2] Vladimir Cerny,[3,4] Jarmila Razova,[5] Petr Kala,[6,7] Jiri Dolina,[6,8] Ondrej Majek,[1,2] Silvie Sebestova,[2] Monika Bezdekova,[2] Hana Melicharova,[2] Lenka Snajdrova,[1,2] Ladislav Dusek,[1,2] Jiri Parenica [2,6,7]

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ABSTRACT

Objectives COVID-19 might either be entirely asymptomatic or manifest itself with a large variability of disease severity. It is beneficial to identify early patients with a high risk of severe course. The aim of the analysis was to develop a prognostic model for the prediction of the severe course of acute respiratory infection.

Design A population-based study.

Setting Czech Republic.

Participants The first 7455 consecutive patients with COVID-19 who were identified by reverse transcription-PCR testing from 1 March 2020 to 17 May 2020.

Primary outcome Severe course of COVID-19.

Result Of a total 6.2% of patients developed a severe course of COVID-19. Age, male sex, chronic kidney disease, chronic obstructive pulmonary disease, recent history of cancer, chronic heart failure, acid-related disorders treated with proton-pump inhibitors and diabetes mellitus were found to be independent negative prognostic factors (Area under the ROC Curve (AUC) was 0.893). The results were visualised by risk heat maps, and we called this diagram a 'covidogram'. Acid-related disorders treated with proton-pump inhibitors might represent a negative prognostic factor.

Conclusion We developed a very simple prediction model called 'covidogram', which is based on elementary independent variables (age, male sex and the presence of several chronic diseases) and represents a tool that makes it possible to identify—with a high reliability—patients who are at risk of a severe course of COVID-19. Obtained results open clinically relevant question about the role of acid-related disorders treated by proton-pump inhibitors as predictor for severe course of COVID-19.

Strengths and limitations of this study

- The majority of consecutive patients diagnosed with COVID-19 in the Czech Republic were included in the analysis, regardless of whether they were hospitalised or not.
- The cohort covers also asymptomatic and oligosymptomatic patients identified thanks to epidemiological monitoring.
- The cohort does not include strictly all COVID-19 cases in the Czech Republic because some patients are asymptomatic and have not been tested.
- The proposed prediction model is a simple tool that makes it possible to identify—with a high reliability (AUC 0.893)—patients who are at risk of a severe course of COVID-19.
- Flexible calibration curves based on local regression confirm the predictive model is well calibrated. The out-of-sample calibration is currently not available as data of large sample of patients from the second wave COVID-19 in the Czech Republic are still under preparation.
- Due to the retrospective nature of this study, which is based on data of administrative registries, results of laboratory, clinical and X-ray examinations were not available. Conclusions regarding the influence of comorbidities and the consumption of medicinal products should be interpreted with caution and will require further validation.

INTRODUCTION

COVID-19 is caused by betacoronavirus SARS-CoV-2, which enters human cells via the membrane-bound ACE 2 (ACE2).[1] The presence of infection might be entirely asymptomatic[2] or manifest itself with a large variability

dyspnoea, haemoptysis, pneumonia or Acute Respiratory Distress Syndrome (ARDS)) and the cardiovascular system (presented as myocardial injury or myocarditis, ventricular arrhythmias, haemodynamic instability or deep vein thrombosis), while other organ systems (such as the central nervous,[3] gastrointestinal system or kidneys[4]) are affected less frequently. In a number of patients, there is

Jarkovský J, Benešová K, Černý V, et al. Covidogram as a simple tool for predicting severe course of COVID-19: population-based study. BMJ Open 2021; 11(2): e045442.

Přibylová L, Eclerová V, Májek O, et al. Using real-time ascertainment rate estimate from infection and hospitalization dataset for modeling the spread of infectious disease: COVID-19 case study in the Czech Republic. PLoS One 2023; 18(7): e0287959.

Journal of Tissue Viability 31 (2022) 424–430

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How the COVID-19 pandemic influences the prevalence of pressure injuries in the Czech Republic: A nationwide analysis of a health registry in 2020

Andrea Pokorná [a,b,c,*], Dana Dolanová [a,b], Klára Benešová [b], Petra Búrilová [a,b,c,d], Jan Mužík [a,b], Jiří Jarkovský [a,b], Lenka Krupová [e], Ladislav Baťalík [d,f], Jitka Klugarová [a,b,c], Miloslav Klugar [a,b,c]

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[c] Czech National Centre for Evidence-Based Healthcare and Knowledge Translation (Cochrane Czech Republic, Czech EBHC: JBI Centre of Excellence, Masaryk University GRADE Centre), Institute of Biostatistics and Analyses, Faculty of Medicine, Masaryk University, Kamenice 3, Brno, 625 00, Brno, Czech Republic
[d] Department of Public Health, Masaryk University, Faculty of Medicine, Kamenice 3, Brno, 625 00, Czech Republic
[e] Department of Dermatology, University Hospital Ostrava, 17. Listopadu 1790/5, Ostrava, 708 00, Czech Republic
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ARTICLE INFO

Keywords:
COVID-19
Pressure injuries
Prevalence
Epidemiology
Inpatient care
Hospitalization

ABSTRACT

Background: COVID-19 significantly influences the overall patient status and, in severe symptomatology, the ability to move and the low oxygenation of the tissue for the ventilated patient in Intensive Care Units (ICU). There is a higher risk for Pressure injuries (PIs) development.

Objectives: The nationwide analyses of the National health register aimed to compare the prevalence of PIs reported before the pandemic COVID-19 started and during the pandemic in 2020.

Method: A retrospective, nationwide cross-sectional analysis of data regarding the STROBE checklist collected by the National Health Information System (NHIS), focusing on the PIs reporting based on the International Classification of Diseases (ICD-10) diagnoses L89.0-L89.9 for PIs in 2020. The data from the pandemic period of COVID-19 in 2020 were compared to the prevalence of PI cases in the period 2010–2019 in the Czech Republic in all hospitalized patients.

Results: The total number of admissions for L89 in 2020 was 14,441, of which 1509 (10.4%) also had COVID-19. In the ICU were 4386 admissions, 12.1% of which also had COVID-19. A higher proportion of PIs is observed in patients hospitalized with COVID-19 than in patients without COVID-19 (2.62% vs 0.81%, respectively 1.05% vs 0.46% when standardized to the 2013 ESP – European Standard Population). In patients hospitalized in ICU, 3.68% with COVID-19 had PIs vs 1.42% without COVID-19 had PIs (1.97% vs 0.81% using the 2013 ESP).

Conclusion: The national health registers analyses have proven that the prevalence of PIs was higher among patients hospitalized with the SARS-CoV-2 infection.

1. Introduction

The coronavirus disease (COVID-19) caused by severe acute respi-
ratory syndro
on March 11,
emerged abou
ment. Even th
the cardiovas
disease that tr

symptoms were not sufficiently prognostic for its presence or severity [2, 3]. Therefore, extrapulmonary symptoms such as neurologic, gastrointestinal, dermatologic, and oral symptoms led to large-scale debates and

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0965-206X/

Pokorná A, Dolanová D, Benešová K, et al. How the COVID-19 pandemic influences the prevalence of pressure injuries in the Czech Republic: A nationwide analysis of a health registry in 2020. J Tissue Viability 2022; 31(3): 424-430.

PLOS ONE

RESEARCH ARTICLE

Using real-time ascertainment rate estimate from infection and hospitalization dataset for modeling the spread of infectious disease: COVID-19 case study in the Czech Republic

Lenka Přibylová[1]*, Veronika Eclerová[1,2], Ondřej Májek[3,4], Jiří Jarkovský[3,4], Tomáš Pavlík[3,4], Ladislav Dušek[3,4]

1 Department of Mathematics and Statistics, Faculty of Science, Masaryk University, Brno, Czech Republic, **2** RECETOX, Faculty of Science, Masaryk University, Brno, Czech Republic, **3** Institute of Biostatistics and Analyses, Faculty of Medicine, Masaryk University, Brno, Czech Republic, **4** Institute of Health Information and Statistics of the Czech Republic

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Data Availability Statement: All data are included in R_CODES_DATA.zip file. These data are collected and available: (1) Mobility data are available without restrictions at https://github.com/ActiveConclusion/COVID19_mobility/blob/master/google_reports/mobility_report_europe.zip (2) Anonymized SARS-CoV-2 positive records (full official Czech Republic dataset with hospitalization data modely_05_datumy.csv) are available at https://onemocneni-aktualne.mzcr.cz/api/account/dokumentace on request at https://docs.google.

Abstract

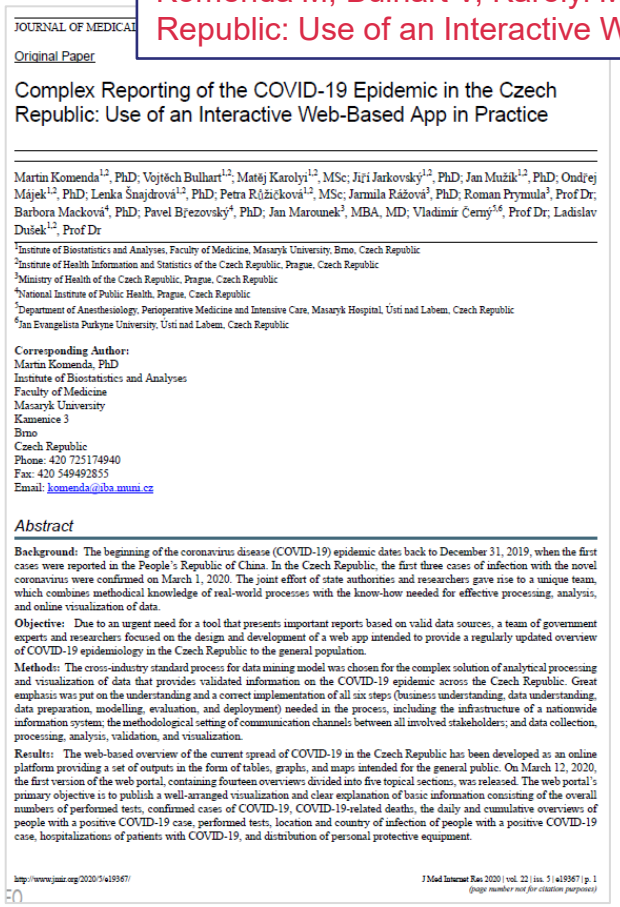
We present a novel approach to estimate the time-varying ascertainment rate in almost real-time, based on the surveillance of positively tested infectious and hospital admission data. We also address the age dependence of the estimate. The ascertainment rate estimation is based on the Bayes theorem. It can be easily calculated and used (i) as part of a mechanistic model of the disease spread or (ii) to estimate the unreported infections or changes in their proportion in almost real-time as one of the early-warning signals in case of undetected outbreak emergence. The paper also contains a case study of the COVID-19 epidemic in the Czech Republic. The case study demonstrates the usage of the ascertainment rate estimate in retrospective analysis, epidemic monitoring, explanations of differences between waves, usage in the national Anti-epidemic system, and monitoring of the effectiveness of non-pharmaceutical interventions on Czech nationwide surveillance datasets. The Czech data reveal that the probability of hospitalization due to SARS-CoV-2 infection for the senior population was 12 times higher than for the non-senior population in the monitored period from the beginning of March 2020 to the end of May 2021. In a mechanistic model of COVID-19 spread in the Czech Republic, the ascertainment rate enables us to explain the links between all basic compartments, including new cases, hospitalizations, and deaths.

Introduction

In mathematical epidemiology, compartmental models of type SIR or SEIR are widely used to describe and explain outbreaks of epidemics [1–8]. The classical SEIR models monitor compartments (i) S Susceptible individuals (those who have not yet been infected by the disease and may become so), (ii) E Exposed individuals (those in the incubation period), (iii) I Infectious individuals (those able to spread the disease) and (iv) R Recovered/Removed individuals

EPIDEMIE COVID-19 – IT INFRASTRUKTURA, SDÍLENÍ DAT

Komenda M, Bulhart V, Karolyi M, et al. Complex Reporting of the COVID-19 Epidemic in the Czech Republic: Use of an Interactive Web-Based App in Practice. J Med Internet Res 2020; 22(5): e19367.



JOURNAL OF MEDICAL

Original Paper

Complex Reporting of the COVID-19 Epidemic in the Czech Republic: Use of an Interactive Web-Based App in Practice

Martin Komenda[1,2], PhD; Vojtěch Bulhart[1,2]; Matěj Karolyi[1,2], MSc; Jiří Jarkovský[1,2], PhD; Jan Mužík[1,2], PhD; Ondřej Májek[1,2], PhD; Lenka Šnajdrová[1,2], PhD; Petra Růžičková[1,2], MSc; Jarmila Rážová[3], PhD; Roman Prymula[3], Prof Dr; Barbora Macková[4], PhD; Pavel Březovský[4], PhD; Jan Marounek[3], MBA, MD; Vladimír Černý[5,6], Prof Dr; Ladislav Dušek[1,2], Prof Dr

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[2]Institute of Health Information and Statistics of the Czech Republic, Prague, Czech Republic
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Abstract

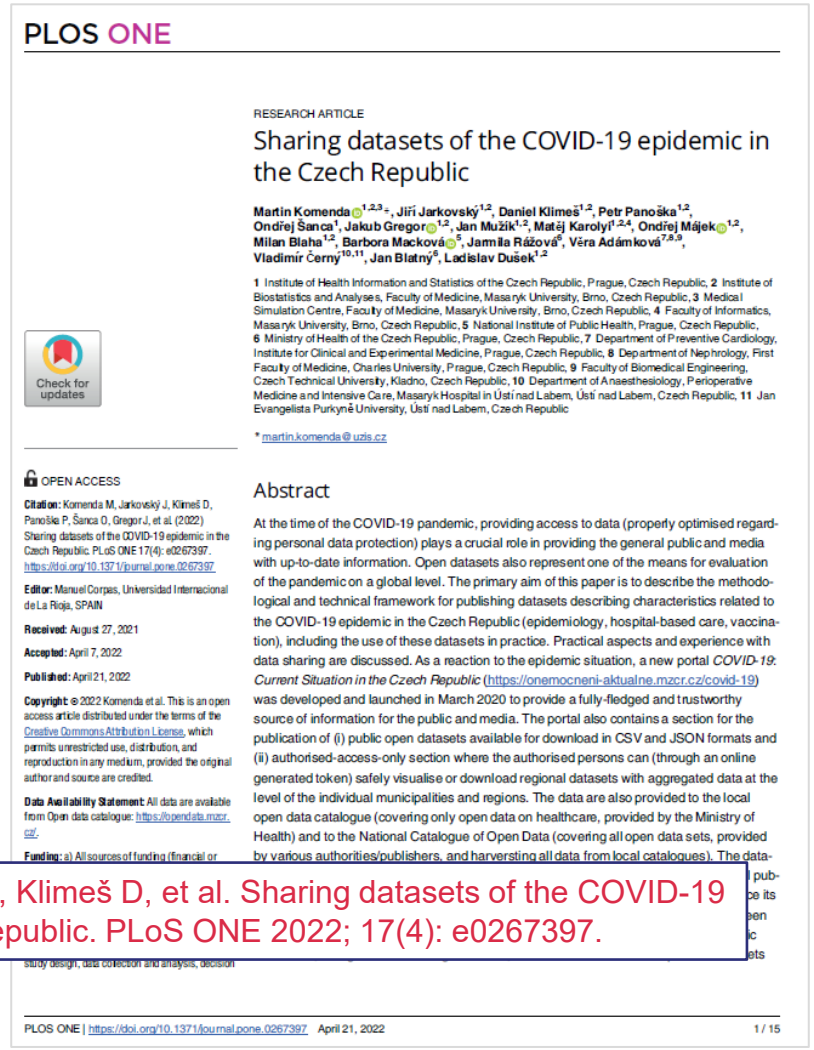
Background: The beginning of the coronavirus disease (COVID-19) epidemic dates back to December 31, 2019, when the first cases were reported in the People's Republic of China. In the Czech Republic, the first three cases of infection with the novel coronavirus were confirmed on March 1, 2020. The joint effort of state authorities and researchers gave rise to a unique team, which combines methodical knowledge of real-world processes with the know-how needed for effective processing, analysis, and online visualization of data.

Objective: Due to an urgent need for a tool that presents important reports based on valid data sources, a team of government experts and researchers focused on the design and development of a web app intended to provide a regularly updated overview of COVID-19 epidemiology in the Czech Republic to the general population.

Methods: The cross-industry standard process for data mining model was chosen for the complex solution of analytical processing and visualization of data that provides validated information on the COVID-19 epidemic across the Czech Republic. Great emphasis was put on the understanding and a correct implementation of all six steps (business understanding, data understanding, data preparation, modelling, evaluation, and deployment) needed in the process, including the infrastructure of a nationwide information system; the methodological setting of communication channels between all involved stakeholders; and data collection, processing, analysis, validation, and visualization.

Results: The web-based overview of the current spread of COVID-19 in the Czech Republic has been developed as an online platform providing a set of outputs in the form of tables, graphs, and maps intended for the general public. On March 12, 2020, the first version of the web portal, containing fourteen overviews divided into five topical sections, was released. The web portal's primary objective is to publish a well-arranged visualization and clear explanation of basic information consisting of the overall numbers of performed tests, confirmed cases of COVID-19, COVID-19-related deaths, the daily and cumulative overviews of people with a positive COVID-19 case, performed tests, location and country of infection of people with a positive COVID-19 case, hospitalizations of patients with COVID-19, and distribution of personal protective equipment.

Komenda M, Jarkovský J, Klimeš D, et al. Sharing datasets of the COVID-19 epidemic in the Czech Republic. PLoS ONE 2022; 17(4): e0267397.



PLOS ONE

RESEARCH ARTICLE

Sharing datasets of the COVID-19 epidemic in the Czech Republic

Martin Komenda[1,2,3]*, Jiří Jarkovský[1,2], Daniel Klimeš[1,2], Petr Panoška[1,2], Ondřej Šanca[1], Jakub Gregor[1,2], Jan Mužík[1,2], Matěj Karolyi[1,2,4], Ondřej Májek[1,2], Milan Blaha[1,2], Barbora Macková[5], Jarmila Rážová[6], Věra Adámková[7,8,9], Vladimír Černý[10,11], Jan Blatný[6], Ladislav Dušek[1,2]

1 Institute of Health Information and Statistics of the Czech Republic, Prague, Czech Republic, **2** Institute of Biostatistics and Analyses, Faculty of Medicine, Masaryk University, Brno, Czech Republic, **3** Medical Simulation Centre, Faculty of Medicine, Masaryk University, Brno, Czech Republic, **4** Faculty of Informatics, Masaryk University, Brno, Czech Republic, **5** National Institute of Public Health, Prague, Czech Republic, **6** Ministry of Health of the Czech Republic, Prague, Czech Republic, **7** Department of Preventive Cardiology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic, **8** Department of Nephrology, First Faculty of Medicine, Charles University, Prague, Czech Republic, **9** Faculty of Biomedical Engineering, Czech Technical University, Kladno, Czech Republic, **10** Department of Anaesthesiology, Perioperative Medicine and Intensive Care, Masaryk Hospital in Ústí nad Labem, Ústí nad Labem, Czech Republic, **11** Jan Evangelista Purkyně University, Ústí nad Labem, Czech Republic

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Data Availability Statement: All data are available from Open data catalogue: https://opendata.mzcr.cz/.

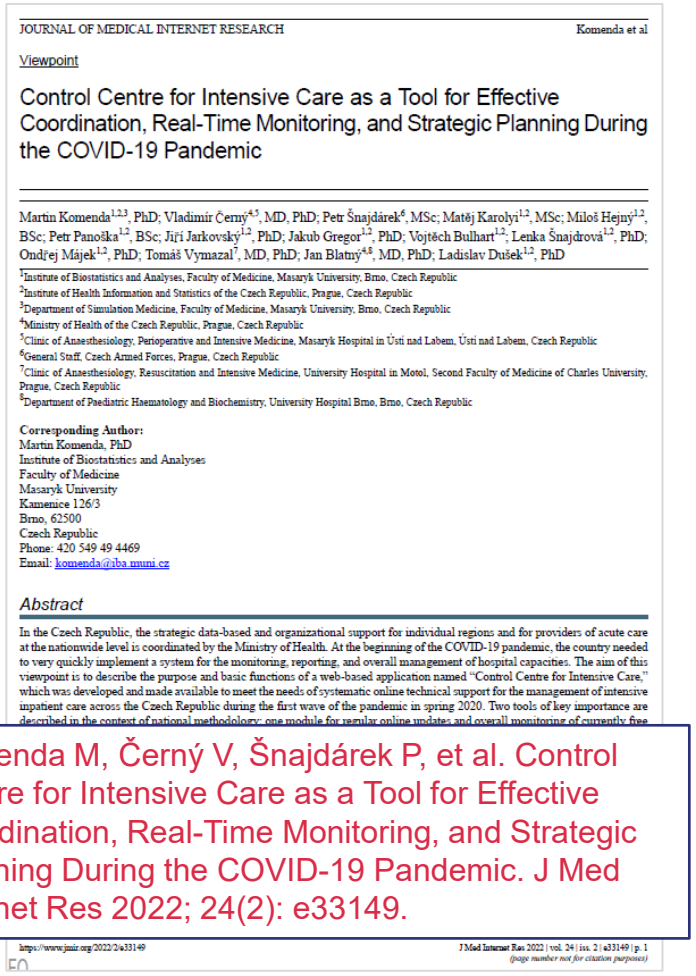
Funding: a) All sources of funding (financial or

study design, data collection and analysis, decision

Abstract

At the time of the COVID-19 pandemic, providing access to data (properly optimised regarding personal data protection) plays a crucial role in providing the general public and media with up-to-date information. Open datasets also represent one of the means for evaluation of the pandemic on a global level. The primary aim of this paper is to describe the methodological and technical framework for publishing datasets describing characteristics related to the COVID-19 epidemic in the Czech Republic (epidemiology, hospital-based care, vaccination), including the use of these datasets in practice. Practical aspects and experience with data sharing are discussed. As a reaction to the epidemic situation, a new portal *COVID-19: Current Situation in the Czech Republic* (https://onemocneni-aktualne.mzcr.cz/covid-19) was developed and launched in March 2020 to provide a fully-fledged and trustworthy source of information for the public and media. The portal also contains a section for the publication of (i) public open datasets available for download in CSV and JSON formats and (ii) authorised-access-only section where the authorised persons can (through an online generated token) safely visualise or download regional datasets with aggregated data at the level of the individual municipalities and regions. The data are also provided to the local open data catalogue (covering only open data on healthcare, provided by the Ministry of Health) and to the National Catalogue of Open Data (covering all open data sets, provided by various authorities/publishers, and harversting all data from local catalogues). The data-

Komenda M, Černý V, Šnajdárek P, et al. Control Centre for Intensive Care as a Tool for Effective Coordination, Real-Time Monitoring, and Strategic Planning During the COVID-19 Pandemic. J Med Internet Res 2022; 24(2): e33149.



Viewpoint

Control Centre for Intensive Care as a Tool for Effective Coordination, Real-Time Monitoring, and Strategic Planning During the COVID-19 Pandemic

Martin Komenda[1,2,3], PhD; Vladimír Černý[4,5], MD, PhD; Petr Šnajdárek[6], MSc; Matěj Karolyi[1,2], MSc; Miloš Hejný[1,2], BSc; Petr Panoška[1,2], BSc; Jiří Jarkovský[1,2], PhD; Jakub Gregor[1,2], PhD; Vojtěch Bulhart[1,2]; Lenka Šnajdrová[1,2], PhD; Ondřej Májek[1,2], PhD; Tomáš Vymazal[7], MD, PhD; Jan Blatný[4,8], MD, PhD; Ladislav Dušek[1,2], PhD

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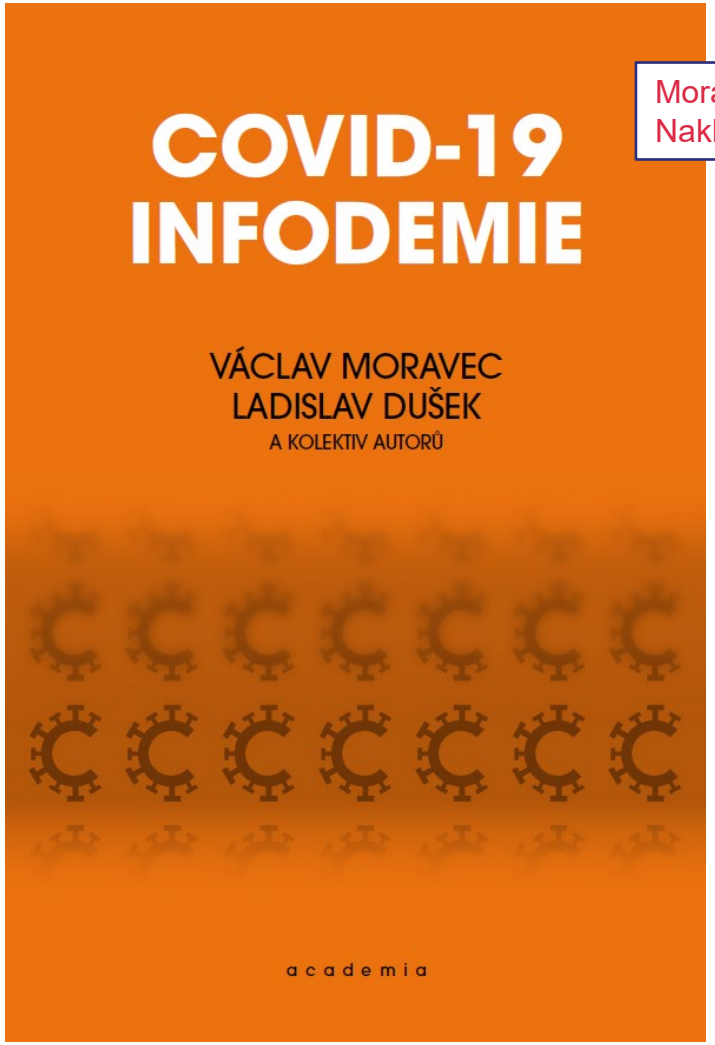
Abstract

In the Czech Republic, the strategic data-based and organizational support for individual regions and for providers of acute care at the nationwide level is coordinated by the Ministry of Health. At the beginning of the COVID-19 pandemic, the country needed to very quickly implement a system for the monitoring, reporting, and overall management of hospital capacities. The aim of this viewpoint is to describe the purpose and basic functions of a web-based application named "Control Centre for Intensive Care," which was developed and made available to meet the needs of systematic online technical support for the management of intensive inpatient care across the Czech Republic during the first wave of the pandemic in spring 2020. Two tools of key importance are described in the context of national methodology: one module for regular online updates and overall monitoring of currently free

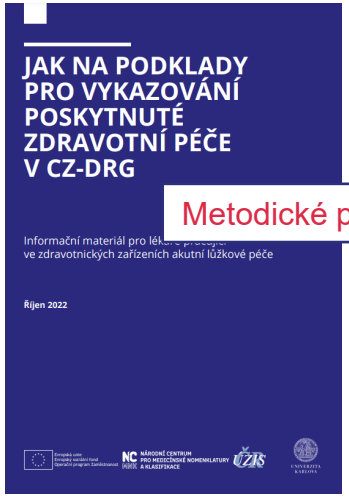
EPIDEMIE COVID-19 – ALL-IN-ONE



Moravec V, Dušek L, et al. COVID-19 infodemie. Praha: Nakladatelství Academia, 2022. 437 s. ISBN 978-80-200-3434-2.

MEDICÍNSKÉ KLASIFIKACE

České překlady mezinárodních klasifikací



Metodické publikace

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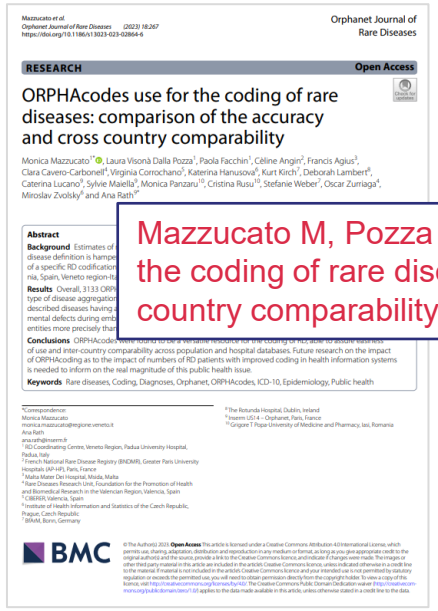

Mazzucato M, Pozza LVD, Facchin P, et al. ORPHAcodes use for the coding of rare diseases: comparison of the accuracy and cross country comparability. Orphanet J Rare Dis 2023; 18(1): 267

DOPORUČENÉ POSTUPY, METAANALÝZY, SYSTEMATICKÁ REVIEW

Typ	Název	Garant	Datum dokončení	Datum poslední aktualizace	Stav
DP	Akutní koronární syndromy (infarkt myokardu a nestabilní angina pectoris) – diagnostika a léčba	Widimský P.	13.6.2019	13.6.2019	Dokončený
DP	Časná diagnostika a léčba chronické virové hepatitidy C (VHC)	Urbánek P.	12.2.2021	12.2.2021	Dokončený
DP	Časný kolorektální karcinom - aktualizace		31.7.2025	30.8.2024	Schválený k tvorbě
DP	Časný kolorektální karcinom (klinická stádia I. a II.) – diagnostika a léčba	Zavoral M.	12.6.2019	12.6.2019	Dokončený
OD	Časný záchyt a prevence zdravotních komplikací u předčasně narozených dětí	Plavka R.	28.2.2025	31.7.2024	Schválený k tvorbě
OD	Časný záchyt chronické obstrukční plicní nemoci v rizikové populaci		28.2.2025	1.8.2024	Schválený k tvorbě
OD			31.3.2025	30.8.2024	Schválený k tvorbě
OD		Freiberger T.	29.11.2024	2.9.2024	Rozpracovaný
OD		Urbánek P.	30.4.2025	31.7.2024	Schválený k tvorbě
OD		Urbánek P.	31.1.2025	2.7.2024	Schválený k tvorbě
OD		Mašata J.	29.11.2024	6.8.2024	Schválený k tvorbě
OD		Zavoral M.	30.10.2024	22.8.2024	Rozpracovaný
SD				2024	Rozpracovaný

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Metodika tvorby a aktualizace doporučených postupů a operativních doporučení ve zdravotnictví

Autor / Autoři:	PhDr. Miloslav Klugar, Ph.D., Mgr. Jitka Klugarová, Ph.D., MUDr. Lucia Kantorová, Ing. Mgr. Tereza Vrbová, Ph.D., prof. PhDr. Andrea Pokorná, Ph.D., Mgr. Andrea Pavlíková, Mgr. Pavla Drapáčová, Ing. Jana Rozmarinová, Ph.D., RNDr. Dana Vigašová, Ph.D., doc. MUDr. Ondřej Volný, Ph.D., MUDr. Radim Ličeník, Ph.D., RNDr. Jan Mužík, Ph.D., RNDr. Martin Komenda, Ph.D., RNDr. Jakub Gregor, Ph.D., Mgr. Simona Slezáková, Ph.D., prof. RNDr. Ladislav Dušek, Ph.D.
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Doporučené postupy, operativní doporučení, souhrny důkazů (https://nikez.mzcr.cz/)

Klugar M, Lotfi T, Darzi AJ, et al. GRADE guidance 39: using GRADE-ADOLOPMENT to adopt, adapt or create contextualized recommendations from source guidelines and evidence syntheses. J Clin Epidemiol. 2024;174:111494.

SUPPLEMENTAL IMPLEMENTATION PROJECT

Breastfeeding support and avoiding inappropriate breast milk substitute marketing in a neonatal ward in the Czech Republic: a best practice implementation project

Lucia Kantorová MD,[1,3] Andrea Poloková,[2] Michal Sýkora,[2] Tereza Vrbová,[1,3] Miloslav Klugar[1,3] and Jitka Klugarová[1,3]

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ABSTRACT

Objectives: The aim of this implementation project was to improve breastfeeding support, and more specifically, to increase compliance with the Baby-Friendly Hospital Initiative (BFHI) and the requirements of the International Code of Marketing of Breastmilk Substitutes (the Code).

Introduction: The Ten Steps to Successful Breastfeeding of the BFHI have been shown to improve breastfeeding outcomes at target hospitals. The Code is a minimum standard for the regulation of marketing practices related to breastfeeding support.

Methods: We used the JBI evidence implementation model to identify a group of stakeholders in a hospital in the Czech Republic and carried out a best practice implementation project from January 2021 to May 2022. After conducting a baseline audit, the clinical team and external breastfeeding experts discussed challenges and devised an implementation plan using the JBI Getting Research into Practice framework. Follow-up audits were undertaken from January to December 2021 and in May 2022.

Results: Compliance improved across all audited criteria, namely, to fully comply with the Code (0% to 100%); to have a written infant feeding policy (0% to 100%); to ensure staff have skills to support breastfeeding (0% to 100%); to discuss breastfeeding with pregnant women (0% to 100%); to facilitate skin-to-skin contact (67.86% to 83.58%); to support and provide help with breastfeeding (67.86% to 82.09%); to not provide fluids other than breast milk (50% to 58.21%); to practice rooming-in (57.14% to 61.19%); to respond to infant cues (50% to 64.18%); to provide information about community support services (32.14% to 62.69%); and to coordinate discharge and ongoing care (0% to 100%).

Conclusions: Breastfeeding support requires a sustained long-term effort before it can become fully established. The involvement of national-level policy makers is needed.

Keywords: audit; breastfeeding; implementation; lactation; newborn

JBI Evid Implement 2023; 21:S47–S56.

Kantorová L, Poloková A, Sýkora M, et al. Breastfeeding support and avoiding inappropriate breast milk substitute marketing in a neonatal ward in the Czech Republic: a best practice implementation project. JBI Evid Implement. 2023 Dec 1;21(S1):S47-S56.

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Journal of Clinical Epidemiology 174 (2024) 111494

GRADE GUIDANCE SERIES

GRADE guidance 39: using GRADE-ADOLOPMENT to adopt, adapt or create contextualized recommendations from source guidelines and evidence syntheses

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ÚZIS ČR

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Těšitelová V, Policar R, Blaha M, Klimeš D, Dušek L. Jak implementovat Nařízení Evropského parlamentu a Rady (EU) 2016/679. Praha: Ministerstvo zdravotnictví ČR a Ústav zdravotnických informací a statistiky ČR, 2018. 114 s. ISBN 978-80-85047-55-4.

Těšitelová V, Policar R, Dušek L. Jak implementovat v ambulantní sféře Nařízení Evropského parlamentu a Rady (EU) 2016/679. Praha: Ministerstvo zdravotnictví ČR a Ústav zdravotnických informací a statistiky ČR, 2018. 106 s. ISBN 978-80-85047-58-5.

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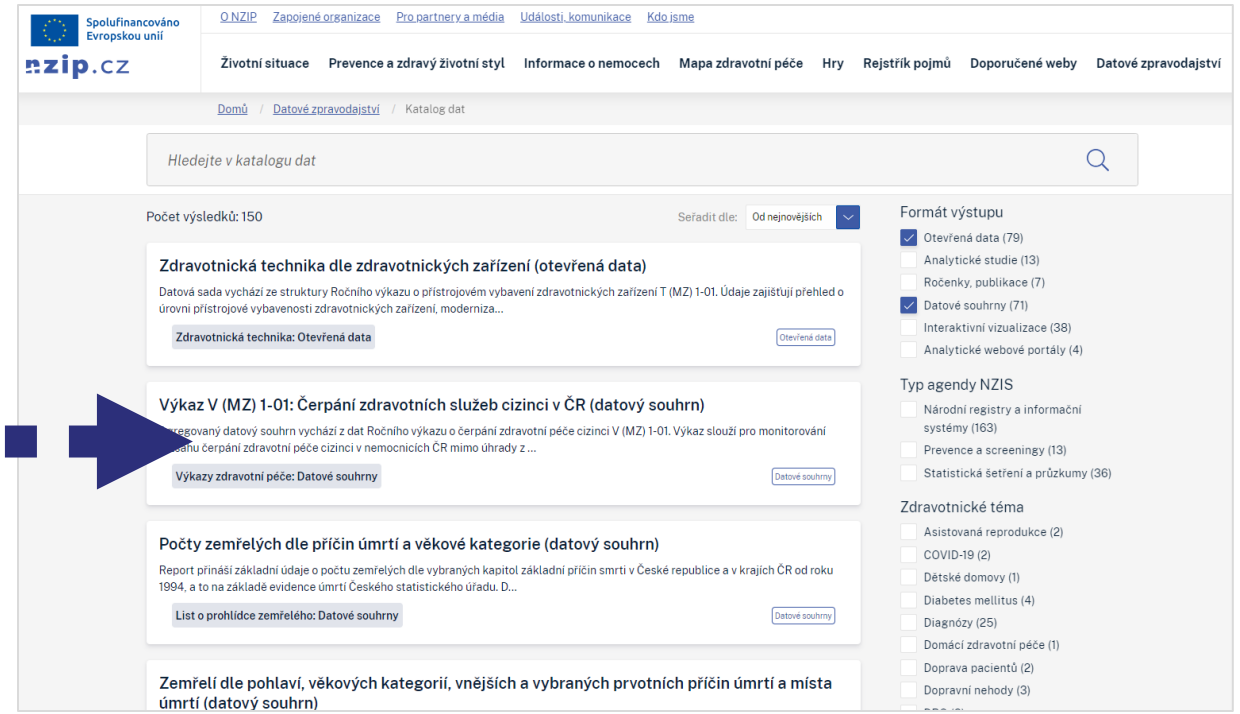
STATISTICKÉ ROČENKY



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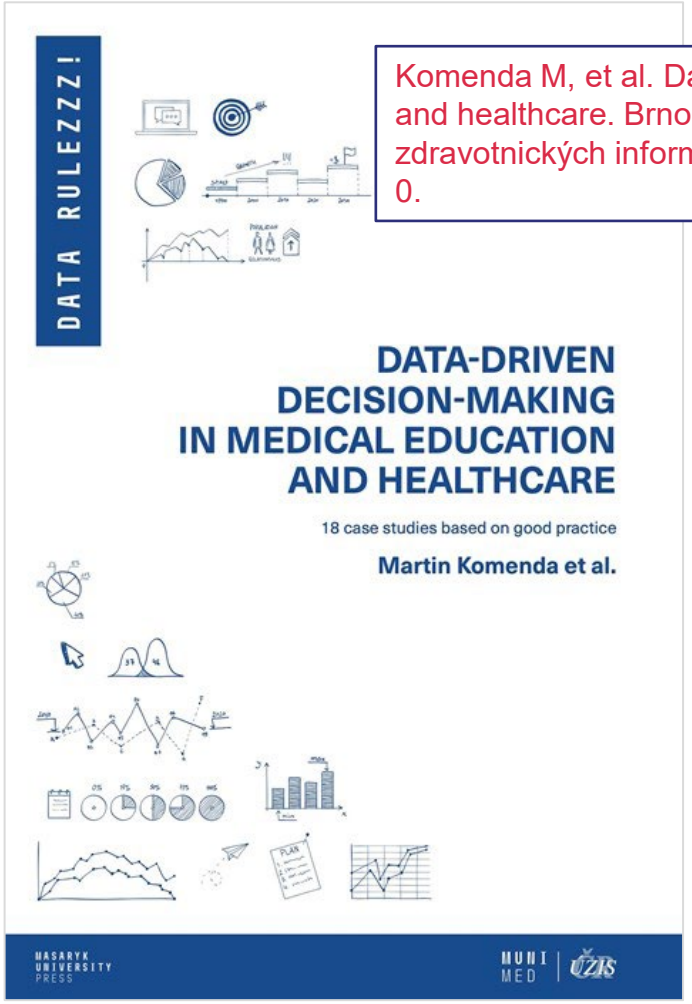

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Integrating Data and Information Systems in National Health Strategy in the Czech Republic

Komenda M., Klimeš D., Jarkovský J., Mužík J., Pavlík T., Blaha M., Kubát J., Těšitelová V., Májek O., Ngo O., Chloupková R., Hejduk K., Zvolský M., Bartůňková M., Šnajdrová L., Gregor J., Růžičková P., Dušek L.

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Introduction

Integrating data and information systems into national health strategies is crucial for enhancing healthcare delivery, improving patient outcomes, and optimising resource allocation. As healthcare demands continue to grow, motivated by ageing populations and the increasing prevalence of chronic diseases, the need for robust and comprehensive health information systems becomes more pressing. These systems enable the collection, analysis, and dissemination of health data, providing critical insights based on data-driven decision-making that inform policy decisions, health interventions, and service delivery. This integration can effectively support real-time data access and decision-making capabilities, facilitating more precise and predictive healthcare services. Moreover, it enhances the capacity for public health surveillance, enabling health authorities to monitor health trends, predict disease outbreaks, and effectively manage health crises such as pandemics. Effective data integration also necessitates addressing data quality, privacy, and security challenges. In addition to the existing General Data Protection Regulation, the European Parliament has approved new legislation (Digital Services Act and Digital Markets Act) improving the functioning of health information systems[1]. Ensuring the confidentiality and integrity of health data protects individuals' privacy and builds public

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exchange and collaboration among healthcare providers, policymakers, and researchers. The strategic use of data and information systems thus plays a transformative role in national health strategies. By leveraging advanced data analytics, artificial intelligence, and machine learning, health systems can transition from reactive to proactive, personalised care models, ushering in a new era of healthcare. This shift not only improves health outcomes but also optimises the efficiency of health systems, ultimately leading to more sustainable healthcare practices and better health for all.

Creating a common European Health Data Space (EHDS) is a priority for the European Commission during 2019–2025. This innovative model is crucial to promote health data interoperability across Europe. Based on the broad survey research study, designing and building the EHDS ecosystem with stakeholders is not just required but urgent. Using the health data scenarios to establish a good

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Ústav zdravotnických informací a statistiky ČR

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