

*Disclaimer: We kindly ask to acknowledge that due to the diverse and heterogeneous nature of the questions and dynamic situations they pertain to, some of the information might be incomplete or only correct for the time being. Thus, please consider the date and date of last update with the below information. All available information was provided by a country representative from the PHIRI network during or in connection to the respective meeting.*

Date: 30.01.2023

Table 1: Country responses - Diagnosis Coding

<b>Country</b>	<p><b>Topic: Diagnosis Coding</b>  <b>Are the health care providers (hospitals and publicly/privately funded outpatient care centres) in your country obliged to use a coding system for diagnoses?</b>  <b>If yes,</b></p> <ul style="list-style-type: none"> <li>• <b>Did the implementation predate COVID-19, or has it only been implemented since then?</b></li> <li>• <b>Please describe the coding system in place (e. g, ICD, ICPC, SNOMED, CT, other or combinations).</b></li> <li>• <b>Please describe the usage of the data (who's the data holder, COVID analyses, analyses in general, scientific studies regarding COVID...).</b></li> </ul>
<b>Albania</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10 <ul style="list-style-type: none"> <li>- Pre-COVID</li> <li>- ICD-10-WHO standard</li> <li>- No studies published</li> </ul> </li> </ul>
<b>Austria</b>	<ul style="list-style-type: none"> <li>• Yes. <ul style="list-style-type: none"> <li>- Some outpatient services in hospitals require coded diagnoses mandatorily (dialysis, cancer chemotherapy, radiotherapy, day-structuring treatments, services from the day-care/inpatient model, intravitreal injection with anti-VEGF, therapy of rare diseases with enzymes or selective immunosuppressive). Primary healthcare units outside hospitals have been obliged to deliver ICPC-2-coded diagnoses since April 2019. There are plans to obligate all outpatient care providers to practice diagnosis coding.</li> <li>- Hospitals deliver the data to the Ministry of Social Affairs, Health, Care and Consumer Protection. Primary healthcare units must transmit the diagnosis to social security. Uses are: <ul style="list-style-type: none"> <li>- Diagnosis and service reports provide the necessary data basis for the payment of inpatient hospital stays and outpatient hospital visits according to the system of performance-oriented hospital financing</li> <li>- Healthcare analysis and planning in the hospital sector</li> <li>- National and international comparability of the diagnosis and service spectrum</li> <li>- Quality reporting (A-IQI – Austrian Inpatient Quality Indicators)</li> <li>- WHO mandated use of ICD for morbidity statistics</li> <li>- Planning and controlling at the hospital, regional and national level</li> <li>- COVID-19: impact of the COVID-19 pandemic on inpatient hospital care, comorbidities, and COVID-19 hospitalization, Long COVID care and other analyses</li> </ul> </li> </ul> </li> </ul>
<b>Belgium</b>	Will reply in written.
<b>Bulgaria</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10. <ul style="list-style-type: none"> <li>- In Bulgaria, ICD-10 is used in the whole healthcare system.</li> <li>- It was in place before COVID-19.</li> </ul> </li> </ul>



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	<ul style="list-style-type: none"> <li>- The data owner is the Ministry of Health and other institutes, depending on the data.</li> <li>- Researchers can apply for access to the data.</li> </ul>
<b>Croatia</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10CM</li> <li>- It was implemented before COVID-19. No new coding system was implemented for COVID-19, only additional reporting systems have been used and implemented.</li> <li>- The Croatian Institute of Public Health holds the data in the national public health information system, the Croatian Health Insurance Fund holds the data in the Integral Central Healthcare Information System of the Republic of Croatia. Hospitals hold their hospital data.</li> <li>- Scientific studies and analyses in general regarding COVID-19 at the population level are done on data held by the Croatian Institute of Public Health and the Croatian Health Insurance Fund. Clinical-level studies are done using hospital data of each hospital.</li> </ul>
<b>Estonia</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10.</li> <li>- ICD was implemented in 1994 and ICD-10 in 1997.</li> <li>- All healthcare providers use ICD-10. COVID-19 (except U10) is used as a secondary diagnosis.</li> <li>- Additionally, the Health Board has a special data set for COVID-19 acute hospital care (MedSitrep), where distinction is made whether COVID-19 is a primary reason for hospitalization or not.</li> <li>- Health Board is data holder of routine COVID-19 statistics and publishes overviews (in Estonian) and coronavirus map once a week at moment (depends on epidemiologic situation). <a href="#">Coronavirus dataset   Government installation profile (terviseamet.ee)</a></li> <li>- Mortality is collected and reported internationally by Causes of Death Registry (National Institute for Health Development)</li> <li>- Scientific studies are done mainly by Tartu University, (mental health with cooperation of National Institute for Health Development)</li> <li>- Health Insurance Fund has data about health care services, vaccinations, prescriptions, costs and has done some analyses (effects of vaccination, long COVID)</li> </ul>
<b>Czechia</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10.</li> <li>- Hospitals and some outpatient facilities must use ICD-10 and report the codes to the insurance companies.</li> <li>- The ICD-10 was introduced in 1994. Before that, the ICD-9 was used.</li> <li>- There were some difficulties with COVID-19 at the beginning, as the WHO had not yet introduced a code, and only a national code was available.</li> <li>- Now, there are very good statistics regarding COVID-19 in Czechia.</li> <li>- The data holder is the Institute of Health Information and Statistics. They are also doing COVID-19 analyses. Other research institutes can also use the data.</li> </ul>
<b>Finland</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10 and ICPC-2.</li> <li>- It was in place long before COVID-19</li> <li>- Hospitalizations with ICD-10, out-patient cases with ICD-10 and ICPC-2 and medications with ATC</li> <li>- THL is the data holder, data can be used for research through Act on secondary use of health care data.</li> </ul>
<b>Hungary</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10, ATC, Finance HBCS and German point.</li> <li>- It was in place before COVID-19.</li> <li>- Hospitalizations with ICD-10 (Hungarian version: BNO), medications with ATC, Finance HBCS and German point</li> <li>- General data collection in central EHR system (EESZT which is operated by OKFŐ,) data surveillance is performed by NNK</li> </ul>
<b>Ireland</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10-AM.</li> </ul> <p>All inpatient and daycase discharges from public acute hospitals in Ireland are coded for diagnosis (and procedures) on discharge. This coding is undertaken by clinical coders through the Hospital Inpatient Enquiry (HIPE) information system. HIPE is a health information system designed to collect demographic, clinical and administrative information on discharges and deaths from acute hospitals nationally. Outpatient care and attendances at</p>



	<p>Emergency Departments who are not admitted to hospital are not currently coded for diagnoses through HIPE. Discharges from private hospitals are not coded through HIPE.</p> <p>The current coding system in use is the 10th Edition of ICD-10-AM / ACHI / ACS. ICD-10-AM is the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification. The ICD-10-AM disease component is based on the World Health Organisation (WHO) ICD-10. ICD-10-AM is used in conjunction with the Australian Classification of Health Interventions (ACHI) and the Australian Coding Standard (ACS) to reflect an accurate health episode of care.</p> <ul style="list-style-type: none"> <li>- The 10th Edition of ICD-10-AM / ACHI / ACS has been used for all discharges from 1 January 2020. During 2020 and 2021, Ireland has introduced the WHO ICD-10 recommendations in relation to the coding of COVID-19 admissions, as well as COVID-19 related diagnoses (e.g. post Covid condition). Full details of coding of COVID-19 in Ireland can be found here <a href="http://hpo.ie/hipe/clinical_coding/irish_coding_standards/ICS_2021_V2.0.pdf">http://hpo.ie/hipe/clinical_coding/irish_coding_standards/ICS_2021_V2.0.pdf</a></li> <li>- Prior to introduction of the 10th Edition of ICD-10-AM / ACHI / ACS, the 8th Edition was used from 1 January 2015, the 6th Edition from 1 January 2009 and 4th Edition from 1 January 2005. Prior to the introduction of the ICD-10-AM Australian Modification in 2005, Ireland used the ICD-9-CM Canadian Modification coding system from 1990-2004.</li> <li>- The Healthcare Pricing Office (HPO) is the data holder for HIPE (<a href="https://www.hpo.ie/">https://www.hpo.ie/</a>). The HPO oversees the administration and management of this scheme, including the development and support of the data collection and reporting software, training of coders and data quality audit, reporting, and responding to requests for data. The HPO is part of the Health Service Executive (HSE) which is responsible for managing Ireland's public health system.</li> <li>- Data from HIPE is used extensively for analysis by the Department of Health (including responses to international data collections by Eurostat / OECD / WHO), the Health Service Executive and researchers. Researchers can be granted access to a HIPE Reporter Portal to query the data. Each HIPE discharge record represents one episode of care. As Ireland does not currently have a unique health identifier, data from HIPE allows analysis of hospital discharge activity, but not estimation of the incidence/prevalence of a particular disease.</li> </ul>
Italy	<ul style="list-style-type: none"> <li>• Yes, ICD-10 and ICD-9.</li> <li>- In Italy the International Classification of Diseases, version IX and X are adopted for coding hospital discharge diagnoses and causes of death.</li> <li>- The International Classification of Diseases-ICD is now in its eleventh edition (ICD-11), having been approved by the 43rd World Health Assembly in May 1990 and entering into force and use in WHO Member States (including Italy) in 1994;</li> <li>- the coding system in place in Italy is the ICD, both for hospital discharge diagnoses and causes of death;</li> <li>- data holder is the Ministry of Health, which collects all the administrative health information from Regions and provides the main national statistics on the National Health System regarding Hospital Discharge Records, hospitalization, emergency care, primary care, specialist visits, health resources, health facilities, and health expenditure.</li> <li>- Most of the COVID-19 pandemic analyses are based on data from the COVID-19 National Surveillance System, managed by the National Institute of Health-ISS, which provides periodic reports both on the infection cases, vaccination, on main characteristics of COVID deaths, on long-term care facilities, and on long-COVID; a huge amount of scientific studies regarding COVID have been also elaborated and published.</li> <li>- The National Institute of Statistics-ISTAT provides cause specific mortality data statistics (including COVID-19 deaths) and, in collaboration with the ISS, reports on mortality excess due to COVID-19.</li> <li>- The Italian Medicines Agency-AIFA provide main statistics and information on COVID-19 vaccines, COVID treatments, monitoring of COVID treatment use, clinical trials on COVID-19, etc. Scientific studies regarding COVID are also elaborated and published by local health institutions, single hospitals or federated hospitals and institutions, using COVID data collected locally.</li> </ul>
Latvia	<ul style="list-style-type: none"> <li>• Yes ICD-10.</li> <li>- ICD-10 is used since 1996.</li> <li>- All diagnoses in all health care institutions are coded using ICD-10, there are also could be used additional classification for manipulation code (for the payment system) <a href="https://www.vmnvd.gov.lv/lv/pakalpojumu-tarifi">https://www.vmnvd.gov.lv/lv/pakalpojumu-tarifi</a> and DRG codes.</li> </ul>



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	<ul style="list-style-type: none"> <li>- It depends from database but in national level CDPC of Latvia are responsible for health data and statistics, all information about CDPC are available in home page <a href="https://www.spkc.gov.lv/lv">https://www.spkc.gov.lv/lv</a> (in Latvian) and official statistical program and data regarding official statistical program are available here: <a href="https://statistika.spkc.gov.lv/pxweb/en/Health/">https://statistika.spkc.gov.lv/pxweb/en/Health/</a>, The National Health Service <a href="https://www.vmnvd.gov.lv/en">https://www.vmnvd.gov.lv/en</a> has data from health care services funded from the State budget.</li> </ul>
<b>Netherlands</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10, SNOMED CT or DBC. <ul style="list-style-type: none"> <li>- It was in effect before the COVID-19 pandemic</li> <li>- Physicians in hospitals can use ICD-10, SNOMED CT, or Diagnosis Thesaurus to describe the diagnosis in the electronic medical record. Diagnosis Thesaurus codes derive to ICD-10, SNOMED CT and DBC diagnoses. DBC diagnosis codes are the basis of the hospital care finance (DBC stands for diagnosis-treatment combination). Hospitals and clinics may submit DBC codes to the DBC system, but they are also required to submit ICD-10 codes for morbidity coding. Since 2023 they're also required to submit ICD-10 codes for day care (in line with European regulations). ICD-10 codes are collected and registered by medical coders and derived from the physician registration in the electronic patient file. Mental health care departments in hospitals (as well as mental health care organizations) use DSM-5. General practitioners use ICPC for diagnoses, conditions and symptoms. These are used for (inter)national registration, for some medication GP's are obligated to add an ICPC code as indication on the prescription.</li> <li>- Data holder: Dutch Hospital Data (DHD) is the data holder of the hospital data, and both NZa and Vektis are data holders of the declaration data of hospitals and clinics. Besides, quality registries are managed separate organizations, like DICA. COVID analyses as well as analyses in general are done by DHD, Vektis and NZa, but also by many other research institutes. Research institutes can perform their analyses in a remote access environment at Statistics Netherlands (CBS).</li> </ul> </li> </ul>
<b>Poland</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10. <ul style="list-style-type: none"> <li>- In Poland the service provider for billing purposes is obliged to collect and submit to the National Health Fund the codes of the reason for the provision of healthcare services based on the International Statistical Classification of Diseases and Health Problems, Tenth Revision "ICD-10". The above results from § 2 sec. 1 and § 3 para. 1 points 3 and 4 of the Regulation of the Minister of Health of June 26, 2019 on the scope of necessary information processed by healthcare providers, the detailed method of recording this information and its transfer to entities obliged to finance services from public funds (Journal of Laws of 2022, item 434).</li> <li>- It should be stated that the obligation in question existed before the COVID-19 epidemic.</li> <li>- The provisions of the Act on Medical Activity do not regulate coding for diagnostic purposes ("coding system for diagnoses").</li> <li>- However, pursuant to § 7 sec. 1 of April 6, 2020 on the types, scope and patterns of medical documentation and the method of its processing, the name and statistical number of the diagnosis of the disease, health problem or injury, according to the International Statistical Classification of Diseases and Health Problems, Tenth Revision, are entered in the documentation.</li> <li>- The National Health Fund supplements/modifies the dictionary of medical procedures classification codes, based on the International Classification of Medical Procedures, Ninth Revision CM, only in the context of settling guaranteed services financed by the National Health Fund from public funds.</li> </ul> </li> </ul>
<b>Portugal</b>	Will reply in written.
<b>Romania</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10. <ul style="list-style-type: none"> <li>- In Romania the International Classification of Diseases, version X are adopted for coding hospital discharge diagnoses and causes of death.</li> <li>- The coding system in Romania is the ICD, both for hospital discharge diagnoses and causes of death.</li> <li>- Ministry of Health is the data holder, which collects all the administrative health information from regions and provides the main national statistics on the National Health System regarding hospital discharge records, hospitalization, emergency care, primary care, specialist visits, health resources, health facilities, and health expenditure.</li> <li>- Most analyzes of the COVID-19 pandemic are based on data from the National COVID-19 Surveillance System, managed by the National Institutes of Public Health-INSP, which provides periodic reports on both cases of infection, vaccination, and the main characteristics of deaths caused of COVID-</li> </ul> </li> </ul>



	<p>19. The National Institute of Statistics provides statistical data on cause-specific mortality (including COVID-19 deaths). Scientific studies related to COVID are also developed and published by local health institutions, using locally collected COVID data.</p>
<b>Serbia</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10. <ul style="list-style-type: none"> <li>- In Serbia ICD10 is in use for morbidity and mortality coding since 1996.</li> <li>- We are using WHO-10 version by WHO from 2010. In 2020 and 2021, some additional codes were implemented in our ICD 10 issue. The link in Serbian is <a href="https://www.batut.org.rs/index.php?category_id=151">https://www.batut.org.rs/index.php?category_id=151</a></li> <li>- Institute of Public Health of Serbia is data holder. COVID analyses are based on national epidemiological surveillance system. The activities are based on Governemnt decision. <a href="https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/zakljucak/2020/50/1/req">https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/zakljucak/2020/50/1/req</a></li> </ul> </li> </ul>
<b>Slovenia</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10 <ul style="list-style-type: none"> <li>- The use of ICD-10 is mandatory in the whole healthcare system (including private HCP) and is also used for causes of death.</li> <li>- There is limited use of SNOMED CT in one part of the e-health system.</li> <li>- It was implemented about 20 years ago.</li> <li>- The data is controlled by the National Institute of Public Health (NIJZ) (major public health databases, registries, and eHealth) and the Health Insurance Institute of Slovenia (data on insurance claims).</li> <li>- Researchers are familiar with the coding system and can request data for research purposes.</li> </ul> </li> </ul>
<b>Spain</b>	<ul style="list-style-type: none"> <li>• Yes, ICD-10-ES. <ul style="list-style-type: none"> <li>- The international classification of diseases and procedures is the necessary basis for the standardisation of clinical information that makes up the Minimum Basic Data Set (MBDS) since 1987 in Spain. The last regulation of the registry is from 2015 (RD 69/2015, of February 6, which regulates the Registry of Specialized Health Care Activity; <a href="https://www.boe.es/buscar/act.php?id=BOE-A-2015-1235">https://www.boe.es/buscar/act.php?id=BOE-A-2015-1235</a>) According to that regulation “The health centres (public and private) will be obliged to provide the data to the body responsible for the registry”. The coding of the main diagnosis is done with the International Classification of Diseases 10th revision, clinical modification for diagnoses (ICD10ES-diagnoses).</li> <li>- Predate COVID-19. The ICD-10-ES has been implemented in Spain since 1st January 2016, as a reference classification for coding clinical and for the register of morbidity attended, in accordance with the provisions of Royal Decree 69/2015, of 6 February establishing the Activity Register specialised Health Care. It was established a gradual implantation, depending on the type of hospital and the care area, of a new data model of the MBDS. This new model of data is mandatory to register, from this not at least, hospitalisation and surgical processes major outpatient clinics in acute hospitals. The exchange of data with the institutions of the European Union is carried out in accordance with the provisions of Regulation (EC) No. 1338/2008 of the European Parliament and of the Council, of December 16, 2008, on community public health statistics. and health and safety at work.</li> <li>- The ICD-10-ES, entered into force for clinical codification. In Spain, the technical group that is responsible for agreeing on the rules that unify the criteria of clinical coding is the Technical Unit for Coding of the National Health System (belongs to the Ministry of Health), made up of experts from all Health Services. This unit, in operation since 1994, is responsible for regulating and reviewing the regulations on the use of the classification in force in our field. To facilitate the application of this regulation, the Technical Unit has undertaken, since its creation, the elaboration of manuals and monographs that address the aforementioned codification standards, especially in the most complex areas.</li> <li>- The last manual of ICD-10-ES published here (4th edition,2022): <a href="https://www.sanidad.gob.es/estadEstudios/estadisticas/normalizacion/CIE10/Manual_Cod_CIE_10_ES_Diagn_4_Ed.pdf">https://www.sanidad.gob.es/estadEstudios/estadisticas/normalizacion/CIE10/Manual_Cod_CIE_10_ES_Diagn_4_Ed.pdf</a></li> <li>- SNOMED CT is the main clinical reference terminology selected for the Digital Clinical History of the National Health System (HCDSNS), which is a fundamental first step towards the semantic interoperability of the clinical information of the National Health System in Spain. To have this clinical terminology, in 2008 the Ministry of Health and Social Policy initiated the efforts for the entry of Spain as an ordinary member of the International Health Terminology Standards Development Organisation (IHTSDO) organisation that maintains and distributes SNOMED CT. After this entry the current Ministry of Health is established as National Reference Centre for SNOMED CT within our national territory and this enables, among other functions, to distribute the terminology, along with the Spanish editions and extensions that are developed, both to public and private organisations, completely free of charge.</li> </ul> </li> </ul>



	<p>In Primary Care are in use 2 families of international classifications. Of a part, the International Classification of Primary Care (ICPC) and, on the other hand, the Classification International Diseases — ICD; the latter both in the ICD-9 and ICD-10 versions.</p> <ul style="list-style-type: none"> <li>- Data are collected using the Spanish Information System (SiVIES), populated by the National Epidemiological Surveillance Network (RENAVE), which are held by the National Centre of Epidemiology from the Carlos III Health Institute.</li> </ul> <p>Analysis of COVID-19 surveillance data are performed either by the National Centre of Epidemiology or by the Alert and Emergency Coordination Centre from the Ministry of Health Both provide periodic reports on infection COVID-19 cases, hospitalisations, ICU admission and COVID-19 mortality. In addition, the National Institute of Statistics publish cause specific mortality data, including COVID-19 and other causes.</p> <p>Scientific studies regarding COVID are also elaborated and published by research groups of universities and public institutions.</p> <p><b>Further information (only in Spanish):</b></p> <ul style="list-style-type: none"> <li>- Clinical Database of Primary Care: <a href="https://www.sanidad.gob.es/estadEstudios/estadisticas/estadisticas/estMinisterio/SIAP/home.htm">https://www.sanidad.gob.es/estadEstudios/estadisticas/estadisticas/estMinisterio/SIAP/home.htm</a></li> <li>- Codification for Sars-Cov-2 infection: <a href="https://www.sanidad.gob.es/estadEstudios/estadisticas/normalizacion/CIE10/Norm_COVID19_01072020.pdf">https://www.sanidad.gob.es/estadEstudios/estadisticas/normalizacion/CIE10/Norm_COVID19_01072020.pdf</a></li> <li>- COVID-19 in Spain: <a href="https://cnecovid.isciii.es/">https://cnecovid.isciii.es/</a></li> </ul>
<p><b>UK</b></p>	<ul style="list-style-type: none"> <li>• Yes, ICD-10-WHO for inpatient stays; outpatient data are not clinically coded; general practice data use Read2 codes but moving to SNOMED CT. There are similar systems in Scotland, Northern Ireland, and England.</li> <li>- Pre COVID-19</li> <li>- The health data in Wales is managed by the Digital Health and Care Wales but linked anonymised data are available to researchers through the SAIL trusted research environment - <a href="http://www.saildatabank.com">www.saildatabank.com</a></li> <li>- Some studies published on the raw data but most used the ConCOV (Controlling COVID) population electronic cohort created by Swansea University – see protocol: <a href="https://bmjopen.bmj.com/content/bmjopen/10/10/e043010.full.pdf">https://bmjopen.bmj.com/content/bmjopen/10/10/e043010.full.pdf</a></li> </ul>



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