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Codification of Medical Services in Settlements with the National Health Fund on the Basis of International Standards

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Abstract:

Purpose: *The purpose of codification is also to take into account the diversity of services, both in terms of doctors' specialization and the type of diagnostic and therapeutic procedures.*
Design/Methodology/Approach: *The article presents the principles and method of creating codes and the principles of settlement of medical procedures performed according to adopted codes using international standards.*
Findings: *This codification procedure is intended to accurately reflect the diversity of medical activities. The process of codification of medical services should take into account the temporal aspect, relating to the period of service provision, and the spatial aspect, relating to the location of the medical facility. The time aspect of codification should enable effective monitoring of dynamic changes in the area of health care, and the spatial aspect should allow for taking into account the specificity of services provided depending on the region. The codification is based on the ICD10 classification of diseases and the ICD9 classification of medical procedures.*
Practical implications: *The use of International Classification of Diseases and Related Health Problems (ICD-10) and International Classification of Medical Procedures (ICD-9) in medical services and procedures coding, ensures transparency of provided health services.*
Originality/value: *Analysis of trends, morbidity and death rates in populations helps the World Health Organization to fight with diseases, as well as assurance of health security.*

Keywords: *Medical services, medical activity, public health, health care, codification, financing, community security.*

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1. Introduction

Codification of medical services and procedures is a system which assigns unique alphanumeric codes to particular healthcare services. Unambiguous identification and classification of different medical services is possible due to codification, which is of key significance for healthcare systems functioning all over the world. At the beginning of 21st century, Poland, in the process of transformation to other healthcare system, took advantage of other countries' experiences. Introduced new economic conditions were series of success and failures, aiming at improvement of provided medical services and functioning effectiveness of healthcare.

The resources from general health insurance, which, according to law regulations, become public funds and are subject to settlements in accordance with Finance Act (Act of 2009) are the basic source of healthcare financing in Poland. Settlement of public funds was connected with implementation of Diagnosis Related Groups concept, which was to standardize medical services (Gryglewicz, 2016). The concept was created in 1980s in the USA in a response to the lack of unified settlements of medical services and rapidly increasing expenses for healthcare.

The concept (system) of Diagnosis Related Groups in Poland was implemented on 1st July 2008, pursuant to the Ordinance of the President of the National Health Fund (Ordinance of 2008). For example, in England and in Spain, the Diagnosis Related Groups system was introduced in 1994, and in Germany in 2003. This system became the basis for settlements concerning provided medical services, and consequently the fundament of medical services and procedures codification. The research conducted for the needs of this article aimed at presentation of history and current state of provided services codification. Why is codification so important?

Thanks to common codes, it is possible to compare medical data on the local, national and international level. Moreover, codes are the basis for settlements between medical institutions, payers and insurers. Codes also facilitate collecting detailed data concerning frequency of particular procedure performance, which allows for trends analysis and resources planning.

Due to unified terminology, providing medical examinations and comparing results, is simplified. Codes also help to monitor the equality of provided services and identify areas requiring improvement. Codes implementation protects patients' privacy, enables personal and medical data protection. Research results presented in this article considerably contribute to scientific discipline concerning management and quality, as well as to health sciences.

The aim of observational study and literature analysis was the attempt to widen already existing research, which requires refinement to a great extent. The goal is to illustrate if, and to what extent, medical services and procedures codification in Poland is consistent with international standards and, if it facilitates settlements with

an institutional payer, which is National Health Fund. The research area is medical services codification for the needs of settlements of healthcare providers with National Health Fund, since the main intention of creating common system of codes, enabling unambiguous identification and description of provided medical services.

All medical institutions deal with services coding, including hospitals and medical clinics. Codification aims at ordering settlement processes with National Health Fund, improvement of medical documentation, facilitating of monitoring and analysis of provided services range and purposefulness.

The research approach is of empirical character and assumes that getting to know the problem is possible only through data observation and analysis. The source of information for the needs of this publication was national and international literature, as well as acts of law concerning widely understood healthcare system functioning.

2. Literature Review

Research and analysis of medical services system codification starts from wide-ranging health services market study. Essential factors influencing codification processes, such as medical institutions organizational structure evolution, progress in medical technology and changing patients' needs are identified in the aspect of dynamic transformations in healthcare system. Then, medical documentation as a foundation enabling effective codification was a subject to analysis. Research was performed on rules and requirements concerning records keeping in a paper and electronic form, taking into consideration difficulties connected with complexity of provided services and necessity of medical information replication.

Codification of medical services is an ordering and classifying process, within which unique codes are assigned to every medical service or procedure (Kozierkiewicz, 2009). Each of these codes creates alphanumeric sequence, allowing for unambiguous identification of a particular diagnostic therapeutic procedure or other service connected with healthcare services realization (Proassist, 2024).

The main goal of medical services codification is simplifying clear understanding, monitoring and settlement of offered services, both for medical institutions, as well as for paying institution – National Health Fund.

Moreover, codification supports statistic analysis, healthcare quality research and resources planning processes. Health services are systematically ordered with the use of different criteria, such as the kind of provided procedure, medical branch or healthcare provider's characteristics. Codes are used for recognizing various kinds of health procedures, pharmacological therapies or surgical intervention. They also encompass services connected with medical visits, consultations with specialists or outpatient care (Smiley, 2012).

The system of diseases classification is a mechanism of grouping disease entities in certain categories on the basis of determined criteria. There is a number of different methods of classification, from which, the proper one is chosen, depending on the purpose of statistical data use. Diseases classification has to include different medical conditions divided to right number of categories, simplifying their analysis and comparison.

International Statistical Classification of Diseases and Related Health Problems 10th Edition – ICD-10 (International Statistical, 2009) stands for the newest version of classification system, which beginnings date back to 1893, when it was started as Bertillon's classification (Britannica, 2024). It is also known as International List of Causes of Death (International List, 1927). Since that time ICD has gone through many actualizations to adapt to changing patients' needs and new discoveries in the field of medicine and public health. Initially, Bertillon's classification was developed to create a coherent causes of death classification system, to facilitate international analysis and comparisons.

Over the course of time, with the development of medicine and social changes, the need to actualize this classification became apparent. As a result, Bertillon's classification was developed and improved and finally converted into currently used International Statistical Classification of Diseases and Related Health Problems – 10th Edition. ICD-10 not only continues traditions of past editions within the range of diseases and health problems classification, but also reflects the newest achievements in medicine and public health.

Using modern criteria and standards enables more precise classification of different disease entities and health effects. Consequently, ICD-10 becomes a highly valuable tool both for researchers, as well as medical practitioners, supporting them in the epidemiologic analysis, diagnosis of diseases, healthcare actions planning and monitoring health trends on the global and national level (Międzynarodowa…, 2009).

The newest edition of ICD-10 classification has been a subject to important modifications and currently it has been developed, including three large volumes, each of which is intended to fulfill particular tasks and meet the needs of users. These three volumes constitute a comprehensive information source used for diseases and health problems classification and for giving directions concerning their codes and interpretation. Each of these volumes includes important materials which allow for in-depth understanding and use of ICD-1- classification in medical and scientific practice.

The key collection of information is included in the first volume of ICD-10 classification, which encompasses the main tabulation. This tabulation includes complex classification of diseases and health problems, ordered according to three and four sings criteria, which enables their precise identification and categorization.

Additionally, this volume includes classification of cancers diagnosis and special tabulations concerning death rates and morbidity rates, which ensure wide range of information connected with different health aspects. Moreover, the first volume contains definitions of key terms and regulations concerning nomenclature, which are essential for proper classification use. These additional elements are especially important for full understanding and practical use of ICD-10 classification and for medical professionals and scientists.

The second volume of ICD-10 classification is a rich source of detailed information concerning the rules of codification of diseases and health problems, which were in the first volume before. This extensive volume includes not only detailed explanations, but also full explanation of theoretical basis and practical implications concerning the use of classification included in the former volume. This volume also contains important information concerning planning process of ICD classification use, which may be especially useful for medical specialists and researchers.

Moreover, the second volume includes interesting historical material, which is presented only at the beginning of the first volume. The rich content causes that the second volume constitutes an invaluable source for healthcare system workers who deal with ICD-10 classification analysis, interpretation and use.

The third volume of ICD-10 classification is an indispensible tool simplifying quick search for particular diseases and health problems by means of included alphabetic index. The third volume has also been supplemented with an introduction showing the reader the subject matter of index and detailed instruction for use, which is helpful in taking advantage of this tool in an effective way. Such improvements cause that classification users can find information concerning certain medical issues and understand the way the index functions much faster, which in turn, increases usefulness and accessibility of essential part of ICD-10 classification.

International Congress on International Statistical Classification of Diseases in 1989 (Report, 1989) adopted actualization of classification, which was confirmed by the Forty-Third World Health Assembly (Forty-Third, 1990). Resolution adopted by the Assembly was an essential phase in the process of new version of classification recognition.

The adopted resolution of the Forty-Third World Health Assembly, after the analysis of Conference report, included different recommendations. Significant aspect, such as acceptance of detailed list of three-signs categories and optional four-signs subcategories are included in the clauses of the resolution.

These categories, together with short lists of death rates and morbidity rates constituted International Statistical Classification of Diseases and Related Health Problems 10th Edition, which entered into force on 1st January 1993. Moreover, the definition of standards and requirements concerns death rates related with the period

of motherhood, pregnancy and perinatal period, as well as death rate of newborns and infants. Studying the rules and instructions concerning codification of the basic death cause and main health conditions, was another essential aspect.

The Resolution also ordered the General Director to issue Operating Guide for International Statistical Classification of Diseases and Related Health Problems. The Assembly supported the Conference recommendations concerning development and implementation of classification groups related with diseases and medical conditions based on International Statistical Classification of Diseases and Related Health Problems. The resolution also supports implementation of regular process of classification actualization process every ten years.

Since the moment of the 6th Edition in 1948 (Bulletin, 1949), regular actualizations of ICD classification are coordinated by World Health Organization. The 10th Edition was created due to wide international cooperation. World Health Organization expresses appreciation for numerous national and international experts' groups contribution, as well as efforts of people from different countries, working on development and usage of classification related with health conditions. Special appreciations were expressed to International Statistical Classification of Diseases and Related Health Problems.

The World Health Organization created nine Cooperation Centers within International Classification Groups. The users of classification in various countries raised their concerns connected with using ICD, especially in cases when new unaccounted disease entities were discovered, which is also an important aspect.

In the past ICD was not actualized in periods of time between subsequent editions, however, in case of ICD-10 a new mechanism was introduced. Due to this mechanism, via Cooperation Centers, it is possible to determine proper codes for new diseases, if it is necessary. There are also many National Reference Centers, where classification users can get support and consultation in case of potential problems. Indicated centers with proper national offices play key role in helping and solving difficulties connected with the use of ICD classification.

On the other hand, International Statistical Classification of Medical Procedures ICD-9 is a categorization system enabling assigning correct codes to various procedures connected with healthcare (Międzynarodowa…, 2008). The main aim of classification is simplifying and ordering medical procedures identification, including surgical, diagnostic, therapeutic and even settlement procedures connected with health services. ICD-9 serves as universal system of coding medical procedures, which enables coherent registration and analysis of various actions performed in healthcare system.

Due to properly assigned codes, it is possible to follow and compare different procedures in a precise way, which is especially important while managing medical

institutions, conducting research on healthcare quality and monitoring healthcare statistics and trends. ICD-9 classification encompass a wide range of procedures, from routine diagnostic examinations to complicated surgical procedures. It ensures complex reflection of diversity of medical procedures provided in clinical practice.

Due to this fact, doctors, medical staff, researchers and analysts can use ICD-9 effectively in order to understand and assess various aspects of healthcare system and to make aware decisions related with management and patients' treatment.

Healthcare system workers have used codification systems to describe different procedures, services and exploitation materials for a long time. At the beginning, attention was mainly paid to coding the reason of procedure, service or delivery by means of diagnostic declaration. However, together with dynamic development of healthcare sector and increase of users of classification systems, the understanding of the need to implement more precise coding methods became more apparent.

At the moment of adopting the Medicare Catastrophic Coverage Act (The Medicare, 1998) in 1988, the need to standardize the coding of the diagnostic process appeared, especially in the context of claims reported to Medicare (Aaronson et al., 1994). Implementation of mandatory use of ICD-9 for coding diagnosis, significantly changed practices within the area of settlements and healthcare costs reimbursements. Even though some specialists may have approached the diagnostic codification as an additional burden or even reason for delays in payments, it should be understood, that correctly used codification system gives the professionals absolute control over the settlement process and costs reimbursements.

However, precise diagnostic codification is not easy and requires great knowledge concerning medical nomenclature, rules and regulations concerning ICD-9. The 9th Edition of International Classification of Medical Procedures (ICD-9) stipulated a crucial step towards standardization of diagnostic process codification. This edition, issued by Practice Management Information Corporation (PMIC, 2009) aimed at simplification of information codification, concerning morbidity rates and death rates, medical documentation indexing (Ordinance, 2020), data keeping and searching. ICD-9, being a statistical classification system, classifies diseases and injuries in groups, according to particular criteria.

The majority of ICD-9 codes include three, four or five digits, which are regularly actualized by World Health Organization, Medicare and Medicaid centers (HHS, 2024). The published actualizations aim at adjusting classification to changing medical reality and diagnostic needs. Being a basis of diagnosis, surgical procedures and treatment coding, ICD-9 is an increasingly important tool for medical professionals, enabling unified and precise documenting of medical cases. Its implementation had a significant influence on hospitals indexing systems and diagnostic processes standardization development in healthcare system (PMIC, 2009).

ICD-9 – the 9th Edition of International Classification of Medical Procedures (International Classification, 1978) includes various groups of tables, which aim at ordering and classifying different diseases, injuries and health problems. Tables in the 9th Edition (ICD-9) include a wide range of categories which help to classify various aspects of diseases, injuries and health problems. The main table constitutes a classification structure, including diseases and health problems categories and subcategories.

Each of these categories have its unique numerical code which facilitates information identification and ordering. Morphological tables include descriptions of different kinds of cancers, which helps to classify cancers precisely with reference to their structure and features. It is essential also due to diagnosis and treatment planning. Tables concerning death rates and morbidity rates contain statistical data related to death rates and morbidity rates caused by different diseases.

These are crucial tables in epidemiologic analysis which also allow to follow population health trends. Specialist tables concentrate on particular areas of medicine or groups of patients, such as children, pregnant women etc. They may contain specific codes for these groups, which simplifies their identification and managing. Etiological tables describe reasons of diseases, which is essential in diagnostics and therapies planning.

They help doctors to understand the origins of the disease and to implement proper remedies effectively. Anatomic tables classify diseases on the basis of their location in the body, which is important for specialists dealing with certain anatomical areas. They enable precise localization and diagnosis of health problems. Medicines and toxic substances tables concern codification of medicaments, poisons and other substances influencing health.

They ensure information concerning related health and safety threats. Medical procedures tables include codes for different medical procedures, such as surgical procedures, diagnostic examinations, therapies etc. They simplify provided procedures identification and documentation. Division of these tables enables more precise classification of different health aspects and diseases for medical professionals. It is crucial for diagnostic and statistical purposes. Thanks to this system of classification, it is possible to make effective settlements of performed procedures, to manage healthcare system and to analyze population's health condition.

3. Research Methodology

The subject matter of this research was codification of medical services for the needs of settlements between healthcare providers and National Health Fund. The aim of this research was exploring actual state, basis and assumptions of codification activities realized by healthcare providers. The way of codifying medical services

and accordance of the process with international standards is the research problem defined during literature studies.

According to scientific research methodology, obtaining knowledge about basics and codification rules for cognitive, settlement, statistical and informative purposes is the goal. Codification is based on ICD-10 diseases classification and on ICD-9 medical procedures classification. Research was conducted with the use of observation, and the type of research is of descriptive character.

If observation is treated as inductive reasoning, then performing in accordance with data analysis technique and documents studies allow to expand knowledge within the research area and draw proper conclusions related with the research subject matter. The realized research belongs to the field of social sciences, to the discipline connected with management and quality. Due to the fact that the research area is widely understood healthcare, it is possible to say that this research is also related with medical and health sciences.

4. Research Results

Literature analysis allowed to explore the basis and rules of codes creation according with directions of International Health Organization. Indicated literature sources describe the way of services and medical procedures coding in an unambiguous and precise manner. The need of proper codification is justified in the commentaries concerning articles. The conducted research proves that the use of codes in settlements with National Health Fund is essential from the point of view of patients' registry process, admission, creation of treatment plans, as well as coding medical services and healthcare facility settlements.

National Health Fund, as an institutional payer, finances medical activity and expects unambiguous information concerning, performed by healthcare providers, medical services and procedures. The correctness of medical services and procedures codification and compatibility of realized services with signed contracts, guarantees refinancing of incurred costs, which influences financial condition of healthcare providers.

Thus, ensuring the continuance of trainings and monitoring workers within the range of coding, even if workers rotate, are of considerable meaning. Permanent improvement of staff's skills, as well as regular controls of performed work, lead to coding process perfection (Puls Medycyny, 2021). These actions are indispensible for maintaining high quality of patients' service and accordance with legal and regulatory requirements.

Preparing patient's treatment plan is of key importance. This process includes diagnosis, medical procedures planning and determining further steps in healthcare. Proper codes enabling identification, classification and settlement of provided

medical services are assigned to every activity. The initial process includes performing detailed diagnosis of a patient. Complex estimation of a patient's medical condition, including medical history, is the first step. A doctor collects detailed information concerning the course of the disease, previous treatments and symptoms.

On the basis of collected information, the doctor, together with a patient, determines therapeutic goals which may encompass relieving the symptoms, curing the disease, medical condition control or life quality improvement. Next, taking into account determined goals, the doctor specifies the best methods of treating a patient, including a diversity of accessible options, such as pharmacotherapy, behavioral therapy, surgical procedures and others. When the case requires providing medical procedures, such as diagnostic examination or invasive procedures, it is necessary to plan and coordinate these actions within the treatment process in a precise way.

Medical procedures planning includes many factors, among others, such aspects as equipment availability date, staff's availability, patients schedules and procedure specifics. Coordination of these actions is indispensible to ensure effectiveness and safety of procedures performance and mitigate the risk of complications and errors. In case of more complicated diagnostic procedures, it is necessary to determine the term of examination, including equipment availability and accordance with the schedule of patient's treatment.

Moreover, the medical staff is responsible for ensuring proper conditions for the patient, so that the patient felt well prepared for examination and well informed about all instructions connected with medical examination. All these factors have to be ensured during medical procedures planning and coordinating process because guarantying complex and effective care for the patient is a priority.

Clinical medicine is a field of knowledge, in which procedures standardization is complicated, in some cases, even impossible. Standards play their role in reference to so called simple procedures. In case of many diseases coexistence in a single patient, deductive actions requiring exceptions from a routine proceedings should be implemented. Only exemption from a standard can determine a treatment success.

Standards can also inhibit the improvement of services quality. The pace of changes in medicine is much more dynamic than the pace of changes in standards actualization. Moreover, scientific discoveries are characterized by rapid, not evolutionary course. Standardization should concern codification procedures, and not realized services or medical procedures.

It should be possible to describe medical situation in the procedure of codification. Lack of description correctness may cause lack of refinancing on the site of institutional payer, which is National Health Fund. Subsequent amendments to International Statistical Classification of Diseases and Related Health Problems

(ICD-10) and International Classification of Medical Procedures (ICD-9) are related with scientific progress and implementation of new technologies. Finance-economic practice should keep up with science for patients' benefit, but, at the same time, for healthcare providers' benefit, who fight for patients' health and life (Pokrzycka-Walczak, 2022).

5. Conclusions

The performed research proves that codification realized within reporting to National Health Fund, is in accordance with World Health Organization directives. The use of International Classification of Diseases and Related Health Problems (ICD-10) and International Classification of Medical Procedures (ICD-9) in medical services and procedures coding, ensures transparency of provided health services. Codes are implemented in hospitals and medical clinics and other medical facilities' IT systems.

Thereby, it is possible to generate invoices, reports and other documents in an automatic way. Unification of coding system in accordance with international standards also enables comparability within world systems. It regards the analysis of trends, morbidity and death rates in populations. Collecting data from the whole world, the World Health Organization, acts in favor of improvement of peoples' health conditions, fight with diseases, as well as assurance of health security. WHO determines global standards concerning for example food security, quality of medicines or hygiene etc.

World Health Organization coordinates international operations in case of the outbreak of the epidemic and other health crisis, such as COVID-19 pandemics. WHO funds and coordinates scientific research concerning new diseases, medicals and treatment methods, as well as modern technologies used to cure patients. Moreover, WHO leads informative campaigns promoting healthy habits, such as healthy nutrition, physical activity and avoiding stimulants.

References:

Aaronson, W.E., Zinn, J.S., Rosko, M.D. 1994. The Success and Repeal of the Medicare Catastrophic Coverage Act: a Paradoxical Lesson for Health Care Reform. J Health Polit Policy Law, 19(4), 753-771. doi: 10.1215/03616878-19-4-753.

Act of Law of 27th August 2009 on public finances OJ 2009, no. 157, item 1240.

Britannica. 2024. Bertillon classification. https://www.britannica.com/topic/Bertillon-classification.

Bulletin of the World Health Organization Supplement 1 Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death Sixth Revision of the International Lists of Diseases and Causes of Death Adopted 1948 Volume 2, Alphabetical Index World Health Organization Geneva, Switzerland 1949.

Forty-Third World Health Assembly Geneva, 7-17 may 1990 Resolutions and Decisions Annexes World Health Organization Geneva 1990.

Gryglewicz, J.G.P. 2016. Czyli jak, gdzie i po co finansować i rozliczać działalność szpitali. In: Menedżer Zdrowia, październik 8/2016, s. 62-77.

HHS. 2024. What's the difference between Medicare and Medicaid? https://www.hhs.gov/answers/medicare-and-medicaid/what-is-the-difference-between-medicare-medicaid/index.html.

International Classification of Diseases Ninth Revision Basic Tabulation List With Alphabetical Index. 1978. World Health Organization Geneva.

International List of Causes of Death American Journal of Public Health, Volume XVII September, 1927, Number 9.

International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Fifth Edition, World Health Organization, 2016.

Kozierkiewicz, A. 2009. Jednorodne grupy pacjentów. Przewodnik po systemie. Wydawca, Narodowy Fundusz Zdrowia, Warszawa, rozdz. 7 i 8.

Międzynarodowa Klasyfikacja Procedur Medycznych ICD-9. Czwarta polska edycja z aneksem: Klasyfikacja Badań Laboratoryjnych, Uniwersyteckie Wydawnictwo Medyczne Vesalius, Kraków, 2008.

Międzynarodowa Statystyczna Klasyfikacja Chorób i Problemów Zdrowotnych. Rewizja dziesiąta, Wydawnictwo World Health Organization, 2009, s. 11.

Ordinance of the President of the National Health Fund no. 32/2008/DSOZ of 11th June 2008 on determining the conditions of concluding and realizing contracts for hospital treatment.

PMIC 2009. https://libutsi.tripod.com/jolcomputersconsultantsinc/ACE%20Institute/ICD9CM/ICD-9-CM/ICD-9-2010%20OFFICE.pdf.

Pokrzycka-Walczak, M. 2022. Koder pomoże w realizacji umowy z NFZ, online: https://serwiszoz.pl/praktycy-radza/michal-chrobot-koder-pomoze-w-realizacji-umowy-z-nfz-6935.html.

Proassist. 2024. Klasyfikacje medyczne, czyli jak prostym kodem ułatwić pracę medykom, online: https://proassist.pl/slownik/klasyfikacje-medyczne-ogolem/.

Puls medycyny. 2021. Koder medyczny: nowy zawód w systemie ochrony zdrowia? Onilne: https://pulsmedycyny.pl/kadry/kadry/koder-medyczny-nowy-zawod-w-systemie-ochrony-zdrowia/.

Regulation of the Minister of Health of 6th April 2020 on kinds, range and templates of medical documentation and ways of processing it OJ 2020, item 666.

Report of the International Conference for the Tenth Revision of the International Classification of Diseases World Health Organization Organisation Mondiale de la Sante 16 November 1989.

Smiley, K. 2012. Medical Billing and Coding For Dummies. Wydawnictwo Wiley, New Jersey, s. 30

The Medicare Catastrophic Coverage Act of 1988 Staff Working Paper October 1988, The Congress of the United States, Congressional Budget Office.