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How to speak nowadays of what is very important for the functioning of the society. A review of selected health security reports

Abstract

We live in the times when we have accustomed to the security and stability of the social system. The COVID-19 pandemic reminded us, Poles, that we have to care for our security all the time, and not only military or economic, but also health security. The first step towards improvement of the current situation is to carry out regular examinations of society's health security. An example of good practice as regards monitoring the health situation are the reports described in this study, which are published all over the world. They present the aspects that have to be taken into account when creating such tabulations and what instruments should be used. Proper monitoring is a key to adopting adequate remedies in order to improve Poland's health security.

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Introduction

The world pandemic which broke out at the turn of 2019 and 2020 has shown how sensitive to external factors is the health care system in various countries. The COVID–19 pandemic has become a critical element not only for the health care system, but also for many industries, transport, tourism and education.

The definition of health security is evolving and keeps on changing its scope. The concept refers to topics connected with prophylaxis and responding to the outbreaks of diseases, bioterrorism, but also covers issues linked with preventing deterioration of health and loss of life or using public health as an elements of politics.

The aim of this review of selected health security reports is to compare information presented therein and indicating what contents are desirable for the authorities that are involved in making decisions of strategic importance for the economy and the society.

Health security reports

The notion of health security appeared at the beginning of the 21 century in a resolution of the World Health Assembly (WHA).[1] It is the top decision-making body of the World Health Organisation (WHO) which determines the policies of the Organization and is made up of delegates from all Member States. The resolution *Global Health security: epidemic alert and response* was concerned with the threats to worldwide health security caused by globalisation.. People's migrations

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[1]   WHO (2001).

as a result of fortuitous events or regular tourist traffic or business trips cause that hotspots of infectious diseases ceased to be a local problem. Epidemiological emergencies occurring in the territory of one state very soon become an international problem, which may affect public and economic security of a large geographical region or even the world at large.[2]

In 1969, WHO adopted the *International Health Regulations*.[3] Those regulations were revised in 2005[4] and focused on the procedures for recognizing and responding to epidemiological threats. The original form of the document was directed at responding to outbreaks of communicable diseases such as plague, yellow fever, smallpox and cholera. On the other hand, the 2005 document constitutes a general instrument the aim of which is to support protection against the spread of health threat throughout the world and minimizing the consequences of those threats once they occur.

Although the legislation that was initiated in 1969 and significantly expanded in 2005 supports broadly conceived global health security, it is not sufficient to ensure such security. Another important document are local health security reports published annually by individual WHO Member States. They have to be regularly updated at the level of individual states.

Analysing available materials concerning health security reports it may be indisputably concluded that the quality and contents of individual documents considerably vary. They tackle various areas connected with health security depending of the state in which they have been issued and the institution responsible for their preparation. The article shall present a review of publicly available reports directly or indirectly

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[2]   Kocik, Jędras (2017). 2017.
[3]   WHO (1969).
[4]   Kicman-Gawłowska (2008): 739–749.

devoted to health security, as well as the conclusion drawn from their analysis. Special emphasis will be placed on determining what information is most important to be published in a health security report prepared in Poland.

2015 Eurostat Report[5]

The 2015 Eurostat Report, more precisely its health section, provides several major indicators concerning patients' health and the condition of health care system in various countries. The report provides such indicators as: percentage of overweight or obese population, active cigarette smokers or alcohol drinkers, as well as information on life expectancy in individual countries or available health care resources.

Obesity and overweight have been defined in accordance with the Body Mass Index (BMI),[6] also called the Quetelet II Index. It is a ratio of body mass in kilogram divided by the square of height in metres. Determination of the Body Mass Index is of key importance for assessing the hazard of overweight and obesity related diseases, such as e.g. diabetes, ischaemic heart disease or atherosclerosis. It is assumed that higher BMI values are associated with greater health hazards.[7]

The data contained in the report are presented in a clear and reader-friendly manner. The authors of the report pay special attention to those countries where the percentage of overweight or obese population is the highest and the lowest as compared with others, giving the name of the state and the relevant percentage.

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[5]   The EU in the world (2015): 39–49.
[6]   WHO: Global Database on Body Mass Index.
[7]   Stupnicki, Tomaszewski (2006).

...the highest proportions of the population that were either obese or overweight were observed for Mexico (71 %) and the United States (69 %). By far the lowest proportions were observed for South Korea (32 %) and Japan (24 %).[5]

Moreover, analysed were the differences between sexes in individual countries and pointed out were those where those disproportions are the greatest.

The proportion of men who were overweight or obese was greater than the equivalent proportion of women in all G20 members... except for Turkey and Mexico. The widest gender differences were recorded in Australia and Canada.[5]

The comparative analysis is thorough and concerns specific and diverse examples based on data from various geographical areas.

Among the G20 members for which data are available there is far greater variability in the proportion of the population who are obese than among the population who are overweight. Japan and South Korea recorded particularly low proportions of the population that were obese, while the United States reported the highest proportions. In Turkey and Mexico there were large gender differences in the proportion of the population that were obese, with the proportions for females particularly high.[5]

It should be borne in mind that the analysis of obesity or other civilizational problems contributed to greater health security, since the general health condition of the society is one of the key factors in the context of the impact of health on a country's security.

Another indicator considered by the report's authors is the proportion of smokers and drinkers in the societies of different countries. Again, they indicated the countries where those values deviate from the other being the highest or lowest percentage.

> France, Russia, Germany, the United Kingdom and Australia recorded the highest annual alcohol consumption among G20 members in 2011 or 2012, at 10 litres or more of alcohol per inhabitant.[5]

Moreover, in the case of low consumption a potential reason was indicated associated with the religious beliefs dominating in the given countries, which may strongly affect their lifestyles, and thus be reflected in the statistics.

> The lowest average levels of alcohol consumption were recorded for Turkey, Indonesia and India, and may be influenced to some degree by the predominant religious beliefs in these countries.[5]

Attention was also given to such countries as Russia, France, China or Turkey, where the percentage of smokers was the highest. "Russia reported by far the highest proportion of daily smokers, just over one third (34 %) of the population aged 15 and over.

Around one quarter of the population in France, China and Turkey smoked daily, with the incidence of daily smoking among the populations of G20 members dropping below 15 % in the United States, South Africa, Brazil, Mexico and India..."[5]

Moreover, as regards this issue a comparable aspect were again the differences between women and men.

The widest gender differences were recorded in China — where nearly half of all males were daily smokers compared with just 2 % of females — followed by Russia, South Korea, Turkey and Japan. The narrowest gender differences were recorded for the United States, Australia and the United Kingdom.[5]

The most important issues presented in the quoted fragment of the report is information concerning life expectancy as well as availability of certain health care services. The methodology for presenting this information is again focused on indicating those states where life expectance is the longest or the shortest with the enumeration of factors which may be connected with the observed results. Such countries as Japan, Australia, Canada or South Korea were listed as those in which life expectancy is the longest – 80 or more years.

Among the G20 members, the highest life expectancy at birth in 2012 was in Japan (84 years), while in Australia, Canada, South Korea and the EU-28 life expectancy also reached or passed 80 years.[5]

The list of the countries where this value was around 70 included Russia. This value was by 4 years lower for India, and in South Africa did not exceed 60 years. This may be a reflection of the impact of the HIV/AIDS epidemic in those areas. It was noted that in the case of all G20 countries life expectancy for women was greater.

> In all G20 members life expectancy was higher for fe-
> males than for males: the gap ranged from three years
> in China to seven years in Brazil, South Korea and Ja-
> pan, with the 12 year gap in Russia well above this
> range.[5]

Another value which was considered in the analysis was also disability-free life expectancy. The highest value in this category at 75 years was recorded in Japan, whereas in Australia, South Korea, Canada and the United States that value also reached or passed 70 years. However, in such areas as India or South Africa it was much lower and amounted to 57 and 51 years, respectively. As regards this value the difference between men and women was generally smaller than in the case of life expectancy and was from two to five years in case of all G20 countries with the exception of Russia, where it amounted to as much as 9 years. The presented data have been translated on the basis of an excerpt from the report. Therefore, a similar tendency when conveying key information can be noted. Again, numerical data were presented for states with extreme results, i.e. highest and lowest witin a given subject area, as well as the comparison between the sexes.

Fig. 1. Expenditure on health care in individual countries in relation to GDP, 2012.5
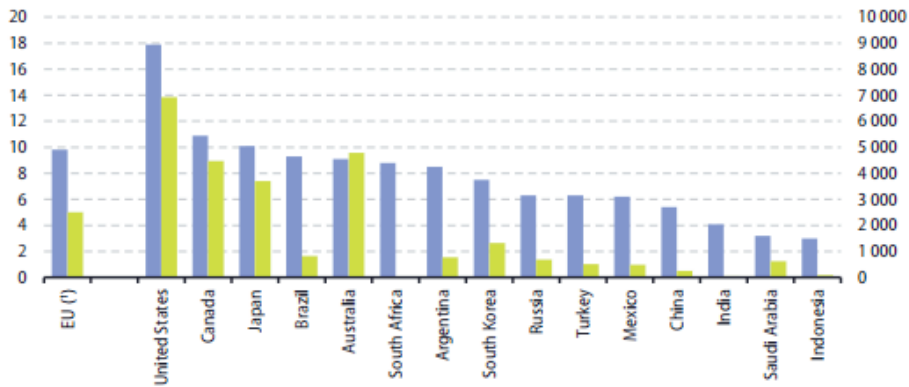
The graph presented in Fig. 1. shows the amounts expended on health care in selected countries in relation to Gross Domestic Product (GDP) (blue scale) and the amount of euro spent per inhabitant)green scale).

It should be noted that this information is of special importance from the viewpoint of the health security strategy. Analysing these and earlier data appropriate measure may be employed aimed at preventing an outbreak of certain diseases, which in a longer run will allow to reduce the consumption of means allocated for treatment of certain patient groups. On the other hand, a more important conclusion is the analysis of per capital expenditure on health care in the context of having an adequate emergency reserve in case of an outbreak of an epidemic or a rapid growth in morbidity.

The last group of information contained in the 2015 Eurostat report which is worth presenting concerns the use of health care resources in selected countries in the years covered by the survey.

Table 1. Information on selected health care indicators per 100 000 inhabitants.5

	Number of hospital beds		Number of physicians (¹)		Number of nurses and midwives (²)		Number of dentists (³)	
	Latest year	Value	Latest year	Value	Latest year	Value	Latest year	Value
EU-28	2011	535	2012	342	2012	869	2012	66
Argentina	2010	450	2004	316	2004	48	2004	92
Australia	2009	380	2011	327	2011	1 065	2011	54
Brazil	2010	240	2013	189	2013	760	2009	118
Canada	2009	320	2010	207	2011	929	2008	126
China	2009	420	2010	146	2010	151	2005	4
India	2005	90	2012	70	2011	171	2012	10
Indonesia	2010	60	2012	20	2012	138	2012	10
Japan	2009	1 370	2010	230	2012	1 149	2010	79
Mexico	2009	160	2011	210	2011	253	2011	12
Russia	2006	970	2012	491	2006	852	2006	32
Saudi Arabia	2009	220	2009	77	2009	234	2009	9
South Africa	2005	280	2013	78	2012	490	2013	20
South Korea	2009	1 030	2012	214	2012	501	2012	45
Turkey	2009	250	2011	171	2011	240	2011	29
United States	2009	300	2011	245	2005	982	2000	163

Summing up the issue contained in this fragment of the extensive report, which apart from the health aspects contains also a lot of other strategic information, it may be noted that having even a small amount of data concerning the cross-section of health problems that occur in the selected countries and the capacities of the health service it is possible to make preliminary strategic decisions for health security. Regretfully, the report does not provide any information with respect to Poland.

2017 Health in the Americas Report[8]

The report *Health in the Americas* was prepared as one of the topmost tasks of the statutory activities of the Pan American Health Organization (PAHO).[9] The publication is brought

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8   PAHO (2017).
9   PAHO Strategic Plan 2020–2025.

out every five years. It contains a great deal of information on the health status of the population in South, Central and North America. The data contained in that publication is a powerful source of information about the fundamental problems and challenges of the American health service (the term American is used here as referring to the entire American continent). The report is so extensive that apart from collective information – which will be the focus of this article – it contains also chapters devoted to each country individually. When analysing that report one gets a very clear picture that its authors were motivated by the problem of heath security, as it tackles several key issues associated therewith.

Discussed are such topics as:

- Chronic diseases (e.g. cancers, circulatory diseases, diabetes, depression, disabilities);
- Age of the population and demographic changes (basing on three basic statistics, i.e. number of live births, number of deaths and migrations);
- Climate changes (by many experts indicated as the original cause of changes in health security);
- National and international migrations;
- Inequities and barriers in health systems.

The reports starts with basic information on population distribution and what percentage of the global population lives in the Americas:

> In 2015, 7.3 billion people lived on our planet. The population of the Americas totaled 992.2 million, 13.5% of the total. In terms of subregions, 357.8 million people were living in North America and 634.4 million in LAC (36.1% and 63.9% of the total, respectively).[8]

Introduced was also a division into populations inhabiting individual regions of the Americas, as well as more specific data concerning the selected states with numerical data given in millions and in percent.

> At 207.8 million, Brazil's population accounted for 20.9% of the LAC total; the Andean Area's 137.6 million accounted for 13.9%; Mexico's population of 127 million represented 12.8% of LAC; the 71.4 million in the Southern Cone accounted for 7.2% of the LAC population; the 45.7 million in Central America made up 4.6% of the LAC population; and the 44.7 million living in the Caribbean represented 4.5% of the LAC population.[8]

It was underlined that in North and South America there are such countries as Brazil, Mexico or the United States, which are included in the list of 10 most populated countries of the world, as well as Montserrat – a country with one of the smallest populations in the world numbering merely 5125 inhabitants.

Therefore, it can be seen that the report presents information with regard to two points of reference, i.e. both with respect to the Americas' regions themselves, as well as in the global context.

Described were not only the data for 2015, but also the trends for 5 preceding years.

> In the last 5 years, the Region added 27.5 million people in LAC and 10.8 million in North America. Although these figures denote a sizable absolute increase, they

> reflect a moderate annual average growth rate (1.12%
> in LAC and 0.78% in North America).[8]

It was noticed, however, that the population increased, the growth rate was slower than recorded in the 1950s in the same areas. This shows that the analysis was relatively thorough and reached back to an earlier timeframe than the last years only.

> This rate of population increase was slower than
> the annual rate the two subregions recorded in the ear-
> ly 1950s (3% and 2%, respectively).[8]

Noted were also particular difference between individual countries in specific timeframes, and the analysis was backed with concrete numerical examples.

> Furthermore, and due to national differences in pro-
> gress towards demographic transition, there was great
> diversity in the current growth rate among the coun-
> tries of the Americas. Between 2010 and 2015, for
> example, Cuba had an average annual population
> growth rate of 0.14%, while Guatemala's rate was 2.1%,
> the total population and average annual growth rates
> of the countries of the Region.[8]

Further on, the report presents population's mortality taking into account the share of communicable, non-communicable and other diseases, as well as maternal and infant mortality. Both were presented in three time brackets, namely: 2002–2005, 2006–2009, 2010–2013. The general conclusion that may be drawn on the basis of this analysis is a constant

decline of mortality in both groups. This means that prophy-
lactic measures introduced in 2002–2013 bring about meas-
urable effects and they should be continued in the future.

The subsequent section focuses on the analysis of critical
health problems of people in the Americas, such as:

- Flu;
- Cholera;
- Resistance to antibiotics;
- Natural disasters;
- Foot-and-mouth disease;
- Diseases transmitted by vectors (plants or animals);
- Chronic communicable diseases;
- Zoonoses.

Each of the sub-chapters presents statistics and extremes
in the occurrence of those cases at a given time. This is impor-
tant as it allows for analysing the need to intensify preventive
efforts in certain areas of the Americas in order to improve
their effectiveness. The majority of those cases have a key im-
pact on region's health security. What is more, it is generally
considered that some of them may even be used as a biologi-
cal weapon.

Another important topic dealt with in the report concerns
chronic diseases caused by external factors. It is a very impor-
tant sub-section due to the fact that it is the cause of an over-
whelming majority of deaths recorded in the Americas.

> Every year in the Americas, non-communicable diseas-
> es (NCDs) are responsible for nearly four of every five
> deaths (79%).[8]

It turns out that this number may even grow in the forthcoming decades – the authors of the report present basic indicators which may contribute to it.

> This figure is only expected to increase in the next decades as a consequence of population growth and aging, urbanization, and exposure to risk factors.[8]

This shows another approach to health security, that is a cause-and-effect analysis and predating a situation which may occur in the future on the basis of observing social factors. In order to present the gravity of the problem listed are the diseases which are main causes of deaths and their percentage shares.

> Cardiovascular diseases (38%), cancer (25%), respiratory diseases (9%), and diabetes (6%) are the four leading causes of NCD deaths.[8]

Apart from presenting non-communicable diseases, the report outline also a number of collateral causes of their occurrence, which are as follows:

> The four leading NCDs (cardiovascular diseases, cancer, respiratory diseases, and diabetes) share four risk factors: tobacco use, harmful use of alcohol, unhealthy diet, and physical inactivity.[8]

Additionally mentioned are metabolic and physiological changes accompanying those diseases, that is which may occur as their consequence,

These in turn lead to other key metabolic/physiological changes such as raised blood pressure, overweight/obesity, raised blood glucose, and higher cholesterol levels.[8]

Such a presentation of information constitutes another important function of health reports, that is making the society aware what behaviours should be avoided in order to prevent a given non-communicable disease. Showing the diseases with their potential causes may spur a change of lifestyle and thus minimise the risk.

Other factors affecting the health status of American citizens include the following:

- Mental health;
- Road traffic injuries;
- Violence (including violence against children), as well as the described long-term consequences of violence;
- Workplace safety, with special regard to accidents at work;
- Children's health and presentation of mortality in children at various stages of their life as well as disability and morbidity caused by most popular diseases;
- Adolescent health as a separate sub-section concerning people in the age bracket of 10–19 years. It is an expanded sub-section, which apart from the basic health statistics for different countries in the Americas raises also the issue of education, nutrition, use of substances (alcohol, tobacco, psychoactive substances) as well as matters of adolescent sexuality;
- Maternal health and the human development index (HDI), which is a synthetic measure describing the level

of socio-economic development of individual countries;

- Health of older persons

The following part of the report concerns the health care condition in various countries of the Americas. Indicated were the aspects illustrating inequitable access to health care in various countries:

> „Guaranteeing the universal right to health will remain simply an aspiration if the profound social inequalities underlying the health gaps in the Region are not addressed."[8]

Empirical studies were invokes, which are an evidence of a strict relationship between the socio-economic situation in the country and health condition of its citizens.

> Empirical studies offer clear proof that the population groups with the worst health outcomes in the countries of the Region also are those that exhibit the material manifestations of socioeconomic inequality, including low income and consumption levels, poor housing, precarious jobs, limited access to quality health services, fewer educational opportunities, inadequate access to clean water and sanitation services, marginalization, exclusion, and discrimination.[8]

The authors underline that the process of aging of the society may be to a certain degree predicted with the uses of appropriate demographic change models, though there are also other factors, such as various types of migration, economic crises or climate change consequences, which are much more susceptible to the impact of fortuitous factors. Emphasized

is the role of communities and civil society in the process of sustainable development and introduction of necessary changes in social policy. Of key importance turns out to be the so-called "life-course approach", that is a theory according to which events are analysed in the context of social structures and cultural factors, which allows for discerning a close relationship with a change of views as regards health and developmental issues.

Its consequences concern not only clinical and epidemiological practice, but also organisation of health services and human resources.

Presented is also information on collaboration of various sectors, both nationally and internationally as the health care challenges it involves. Emphasis is placed on the need for close inter-sectoral cooperation and striving at sustainable development. Taken into account were also the relations between technological and socio-economic development.

In the conclusions the authors point out changes in the statistics since the time of the previous report and indicate the key areas which should be taken into account in the context of health care and preventive measures, which may change people's habits in the Americas.

The report is a very accurate compendium of knowledge as regards many aspects of health of the population in the Americas. Its analysis allows for adopting deliberate and effective measures concerning health security. In particular, information on communicable and non-communicable diseases, the latter being frequently caused by civilizational changes, may be significant for taking strategic decisions in the area of health security.

Health Report, United States 2019[10]

It is a report focusing on the health status of US citizens.

Its form is similar to the report published by PAHO, though there are several significant differences. The main reason is the fact that the analysis can be carried out within a single country only, without the need to present statistics for two continents.

In the first part of the report, its authors describe how life expectancy at birth has changed over the past 10 years.[11,12,13] This information is given in various year brackets and – what is interesting – divided into racial groups, i.e. Latinos, White not Latino and Black not Latino. Generally, the conclusion is as follows:

> In the United States, life expectancy at birth was 78.7 years in 2018, 0.5 year higher than in 2008 . Despite the overall increase in life expectancy at birth over the period, life expectancy declined 0.2 year from 2014 to 2017, then increased 0.1 year in 2018. Increases in mortality from unintentional injuries, Alzheimer's disease, and suicide have contributed to the recent decreases in life expectancy.[10]

The distinction as to skin colour is used in this report for the majority of statistical tables.

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[10]   US Department of Health and Human Services (2019).
[11]   World Health Organization, *Global Health Observatory (GHO) data: Life expectancy and healthy life expectancy: Life expectancy at birth (years).*
[12]   Kochanek, Anderson, Arias (2020).
[13]   Murphy, Xu, Kochanek, Arias, Tejada-Vera (2021).

The analysis of life expectancy is followed by information on the causes of infant mortality by race.[14,15,16,17] The leading causes of death include congenital malformations, preterm birth and low birthweight, sudden infant death syndrome (SIDS), maternal complications of pregnancy and unintentional injuries (accidents) – all in all they accounted for 51.6% of the total. The analysis of data obtained over ten years shows that regardless of race or cause the number of recorded deaths has declined.

For the majority of reported causes the observed decline is relatively large. However, there are issue where the recorded statistics remain on a similar level, though the downward tendency is maintained regardless.

> From 2008 to 2018, the number of infant deaths per 100,000 live births decreased for deaths due to congenital malformations (from 133.74 to 118.71), preterm births and low birth weight (from 112.00 to 97.12), SIDS (from 55.33 to 35.11), and maternal complications of pregnancy (from 41.80 to 36.17). The rates of infant deaths from unintentional injuries in 2008 and 2018 were similar (30.92 and 30.83 infant deaths per 100,000 live births, respectively).[10]

Infant mortality is presented in this reports more extensively than in the preceding one since apart from social background also the cause or mother's age were taken into account.

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[14]   Reidpath, Allotey (2003).
[15]   Ely , Driscoll (2019).
[16]   Hedegaard, Miniño, Warner (2020).
[17]   Wilson, Kariisa, Seth, Smith, Davis (2020): 290–297.

Further on, the authors analyse the most frequent causes of death of adults by sex.[18] In this case, like in the case of the PAHO report, the most frequent causes of death include heart diseases, strokes, cancers, diabetes or lower respiratory diseases.

Drug overdose is another statistic taken into account in this section. What is interesting, it was not included in the previously discussed report. Again, figures are shown by sex and age brackets. It was shown that it continues to be one of the leading health problems in the US, and in 2018 alone 67 367 such cases were recorded. This number was, however, lower as compared with 2017 (70 237 death), though significantly higher than in 2008 (36 450 deaths). In 2018, the majority of cases (69.5 %) were associated with the consumption of opioids.

This is followed by information on the number of suicides by sex and means. The conclusions indicate an upward trend in the years 2008–2018.[19]

Information on quantities and type of tobacco smoked or mortality rates due to individual diseases are similar to information contained in the PAHO report.[20,21,22,23,24,25,26]

The second part of the report provides information on the number of physicians and dentists in different states as well as data illustrating what percentage of the society

[18]   Hu, Wilcox, Wissow, Baker (2008): 589–593.
[19]   Hedegaard, Curtin, Warner (2020).
[20]   Phillips, Robin, Nugent, Idler (2010): 680–688.
[21]   Centers for Disease Control and Prevention.
[22]   Xu, Murphy, Kochanek, Arias (2020).
[23]   Alkema, Zhang, Gemmill (2015).
[24]   Rossen, Womack, Hoyert, Anderson, Uddin (2020).
[25]   Hoyert, Miniño (2020).
[26]   Hoyert, Uddin, Miniño (2020).

does not have adequate access to medical care due to costs. The average number of physicians in each state amounts to about 278 per 100 000 inhabitants and varies from 188 to 672.[27,28,29,30,31,32,33]

The last descriptive part of the report provides information on how much the inhabitants spend on health care and health insurance.[32] It should be borne in mind here that the health care system in the United States is financed in a significantly different manner than in Poland or in Europe, so information of this type is of key importance.

A large portion of data in the following part of the report is presented in the form of detailed tables, which in the opinion of the author of this review is a clearly legible format and allows quickly to reach the data necessary for making decisions associated with health security.

**"The world health report 2007, a safer future, global
public health security in the 21 century" Report[34]**

It is an extensive publication devoted to health security, which comprehensively covers the aspects associated with the main topic of the report.

The major issue covered in the report are the statistics of public health events that took place in the period from September 2003 to September 2006. The greatest number of such

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[27]   42 USC – 1997
[28]   Pub L No 111–148, 124 Stat 119. 2010.
[29]   42 USC 1395–1395lll. 1965.
[30]   US Department of Health and Human Services (2008_.
[31]   Douthit, Kiv, Dwolatzky, Biswas (2015).
[32]   Hartman, Martin, Benson, Catlin (2019).
[33]   42 USC 1396 et seq. 1965.
[34]   World Health Organization (2007).

cases – as many as 288 – occurred in Africa. It is almost one half of the total of 685 incidents and shows how much attention should be given to this problem. It should also be emphasised that this is not the number of all medical incidents, but only those which were assessed as having a potential to affect the health situation all over the world.

The initial part of the report also provides information on the occurrence of chemical and radiological contamination, or environmental disasters. Although many people do not associated this information directly with health security, those threats may, however, have a great impact and should be also analysed and monitored.[35,36]

Further on, discusses were a number of threats for global public health security which are caused by human actions, chemical and radioactive events as well as natural phenomena. It shows how inadequate investments in public health, resulting from a false sense of security in the absence of infectious disease outbreaks, can lead to reduced vigilance and a relaxing of adherence to effective prevention programmes.[37]

The analysis of various cases emphasises the need to employ preventive systems, even if a given threat temporarily subsides, as it turns out that many threat that are considered eliminated may reoccur after a number of years.

This fragment rather forthrightly shows that preventive measures, which are ever more frequently marginalised, should not be neglected. Such issues and reoccurring diseases

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[35]   United States General Accounting Office (2002).
[36]   Jernigan, Raghunathan, Bell, Brechner, Bresnitz, Butler et al. (2002).
[37]   World Health Organization (2004). Fenner, Henderson, Arita, Ježek, Ladnyi (1988).

and situations affecting health security should be monitored also in Poland and the immediate vicinities of our country.

Apart from monitoring the diseases and threats which have been considered to have been taken under control, the health situation in the world has to be kept under surveillance as regards the occurrence of new diseases. Such analysis is found in the further part of the report.

As an example it outlines three new health threats which occurred in the 21 century – bioterrorism in the form of anthrax letters in the United States in 2001, the occurrence of SARS in 203, and mass-scale dumping of toxic chemical waste in Côte d'Ivoire in 2006.[38]

In the contexts of what happened in recent months it is worth paying special attention to the fragment on the SARS virus disease which occurred in 2017. The importance of that event was underlined because it had been a new, previously unknown pathogen of potentially serious international implications not only to public health, but also economic security. Noted were the characteristics of the SARS disease, such as the spread of the virus from person to person, no particular geographical affinity or a slow process of incubation.

The most serious consequences had been recorded among hospital staff, and the virus proved lethal to around 10% of those infected.[38]

It should be noted that such information was provided already in the report published in 2007.

The second part of the reports presents possible means aimed to prevent the spread of diseases and threats to health security. Mentioned are cases when prompt response

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[38] World Health Organization (2004). Fenner, Henderson, Arita, Ježek, Ladnyi (1988).

of the international community resulted in eliminating the hotspots of diseases that occurred in the past. Pointed out is the need to prepare the health care system for the pandemic situation and guarantee a sufficient reserve of medications (if it is possible to cure the disease with drugs). An example of virus H5N1 containment is described below:

> Working together, WHO and some Member States created international stockpiles of oseltamivir, an antiviral drug that potentially could stop transmission in an early focus of human-to-human transmission.[34]

The goal of the pharmaceutical industry was to continue the search for an effective vaccine. In 2007, outbreaks in poultry continued, as did sporadic cases in humans, but a pandemic virus failed to emerge. It was, however, agreed that the question of a pandemic of influenza from this virus or another is still a matter of when, not if.[38, 39, 40, 41, 42]

As a summing up it is worth quoting a fragment where the authors indicate major elements that may prevent the outbreak of a pandemic or minimise its consequences.

> No single country – however capable, wealthy or technologically advanced – can alone prevent, detect and respond to all public health threats. Emerging threats may be unseen from a national perspective, may require a global analysis for proper risk assessment, or may

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[39]   *Summary table of SARS cases by country, 1 November 2002–7 August 2003.*
[40]   World Health Organization (2003).
[41]   World Health Organization (2006).
[42]   *Enhancing capacity building in global public health* (2006).

necessitate effective coordination at the international level.[42]

The report raises the problems associated with communicable diseases in the fullest way out of those so far described. It begins with a historical outline, which is to be always remembered since in the past our civilisation has experienced many pandemics of communicable diseases. Then it presents selected statistics and examples of coping with pandemics. Finally, it presents major means aimed at preventing threats to health security.

Analysing this report, which covers the period from 2003 to 2006 and was published 13 years ago, one gets an impression that many comments and suggestions as well as health security problems that have been already solved, continue to reoccur. This means that our civilisation still lacks effective instruments for fast monitoring and responding to the outbreaks of communicable disease pandemics.

State of Health in the EU Report, Country Health Profile 2019[43]

It is a report published for each Member State of the European Union. This review presents only the general assumptions considered in this publication, without analysing information contained therein for individual Member States.

The introduction provides basic data on the number of inhabitants, GDP per capita and the share of population over age 65. The information presented concerns the following:

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[43]   OECD/European Observatory on Health Systems and Policies (2019).

- Changes in the mean age of citizens over the past decade;
- The percentage of inhabitants with obesity, smokers, or the amount of alcohol consumed per capita;
- Health care expenditure;
- Patient mortality;
- Health care accessibility;
- Percentage distribution of the level of education in society;
- Mortality rates caused by individual diseases;
- Distribution of the number of medical staff in various regions of the country.

Such reports which are produced for all countries offer information on the heath service and overview of society, but too little data that could be analysed in the context of health security.

<div align="center">

Global Health Security Index[44]

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The Global Health Security Index (GHS Index) is the first comprehensive index which allows for a objective comparative assessment of global health security capabilities in 195 countries – WHO members in 2005. The index was introduced in order to standardise health security issues and show how individual states are ranked (the analysed ranking was published in 2019). The Global Health Security Index has been based on 140 questions organized across 6 categories, 34 indicators.

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[44]   Global Health Security Index (2019).

The result for each country many vary from 0 to 100 – it is the sum total of six categories with appropriate weights. Each category is awarded a score on the scale of 0 to 100, where 100 means the most favourable and 0 the least favourable health security conditions. However, weights applied in this model are dynamic and may be changed by users.

The GHS Index is organised across six categories:

- Prevention
- Detection and reporting
- Responding
- Health care system
- Meeting of international norms
- Risk environment

The index was introduced with a view to the fact that at the time of large migrations borders were no longer barriers to the spread of communicable diseases. Global security make it necessary for all countries to prevent, detect and quickly respond to public health emergencies. Every country also has to employ clear criteria as regards its ability to contain a pandemic within its borders, guarantee security to its neighbours and prevent international disaster.

The introduction of the Global Health Security Index (GHS Index) is of enormous importance not only as a motivator for the lowest ranked countries to improve the worst indicators, but also to show higher ranking countries that their internal health security is at risk if they do not support efforts in the countries with the lowest GHS Index.

From the global viewpoint, the introduction of the GHS Index is a very good move since it standardizes certain measures which have an impact on world health security. On

the other hand, very important are local efforts and local control of crises which otherwise may soon become global. The transparency of procedures will undoubtedly be a factor favourably contributing to protection against the situations which occurred alongside the spreading ofT COVID-19.[45,46]

Report of the Supreme Chamber of Control:
Health care system in Poland – the current status
and desirable directions of changes, 2019[47]

As the most extensive report on the status of the health care system in Poland the 2019 report of the Supreme Chamber of Control should be included in this review. The work focuses on fundamental problems experienced by the health care system and presents extensive recommendations as regards solutions which should be implemented in order to improve the health care system in Poland. Worth noting is the fragment concerning the number of microbiologists per hospital. In all cases that figure is below 0.5, while the number of microbiologists for an entire voivodship varies from 0 to 18 people. Taking into account what happened at the beginning of 2020 and continues until today that number is alarmingly small, which was also underlined by the authors of the report already in 2019. Generally, the report emphasises the problem of medical staff shortages in Polish health care facilities. Similar is the situation as regards adaptation of hospitals to general spatial and sanitary requirements – according to the Ministry of Health out of the total of 955 as many as 875 did not meet the requirements.

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[45]   Razavi, Erondu, Okereke, (2020).
[46]   Boyd, Wilson, Nelson, (2020).
[47]   Raport Najwyższej Izby Kontroli (2019).

Obviously, like the reports presented earlier, also this one presents per capita expenditure on health care as a percentage of the GDP, average value of health services, number of hospitals per 100 000 inhabitants, or the structure of health services.

Further on, the report provides information as to accessibility of general and specialised health care for inhabitants, as well as the statistics concerning waiting time for health services. It also shows the issue of the lack of specialised care in many voivodships. The reports points out a problem of significance for health security, namely that the level of microbiological testing in medical facilities was much lower than in West European countries.

The report also pointed out the need to improve the quality and comprehensiveness of patient records, which should include more information on health problems, and underlined the need to improve prevention in the context of minimizing the costs of treating the complications (e.g. diabetes), the value of which frequently amount to many times the multiple of what has been spent on treating the diseases as such. As in the majority of the reports, also in this case cited are the statistics concerning deaths caused by the most frequent diseases and cancers.

A distinguishing feature were patient surveys and their results presented in the final part of the report.

The conclusions presented as a sum-up of the report are mostly pessimistic and show a lot of shortcomings of the current health care system in Poland. The report suggests possible solutions and shows how Poland ranks as compared with other European countries. Regretfully, the reports only marginally tackles the problem of health security within the meaning according to which it is defined in this study.

The report of the Supreme Chamber of Control is a source of information on the condition of the Polish health service, though it does not raise those aspects which were discusses in the US or global health security reports. No information on migrations within the country or between the neighbouring countries, security procedures at travel terminals or information on chemical, biological or natural hazards is a significant shortage in the context of health security.

Conclusions

The brief analysis of available health security reports shows that in Poland there is a lack of extensive analyses and data pertaining to this subject, which in the times of globalisation and the COVID-19 pandemic is particularly precarious. Only detailed and in-depth examination of the current health security situation from the viewpoint of communicable diseases, climate change, migrations, toxic, radiological or environmental incidents would allow for an adequately early identification and prevention of situations which may have an impact on broadly conceived health security.

As we could see for ourselves during the COVID-19 pandemic health security concerns not only health care problems, but also economic recession, which may lead to riots and armed conflicts. The current pandemic revealed also other social problems, such as the declining level of schooling as a result of remote learning at all levels of education. Besides, there are also health problems due to lesser physical activeness of children and youth and deterioration of their eyesight as a result of long hours spent in front of computer monitors under remote learning. Long-term consequences of the continued pandemic may be much more serious than

it could have been predicted at the first glance. One should note depression and poorer personal contacts, which may be maintained solely vis electronic communicators.

A state which does not pay adequate attention to health security becomes an easy prey for an external aggressor. That is which the author of this work believes that regular health security reports should be produced in Poland and the dynamic situation monitored in order to be able to prevent or if need be minimise the consequences of hotspots of communicable diseases, natural phenomena or incidents caused by human actions.

Of course, there are several publications on the subject of health security in Poland, namely: Benedykt Bober's "Bezpieczeństwo zdrowotne jako istotny komponent bezpieczeństwa państwa", 2016,[48] Paweł Grzywna's "Bezpieczeństwo zdrowotne — wprowadzenie do problematyki", 2015,[49] or Paulina Maria Nowicka's and Janusz Kocik's "Zewnętrzne zagrożenia bezpieczeństwa zdrowotnego Polski", 2018.[50] Although the above are very good scholarly publications on health security in Poland, they are not comprehensive reports that should regularly be prepared to ensure effectiveness of adopted measures.

Detailed information on the contents and diversity of the analysed reports described in the previous sections of the article shows that health security is a broad notion made up of many intermediate factors. Depending on a report, their authors devote attention to various aspects contributing to the health situation in a given area. The most important information presented in the majority of them include:

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[48]   Bober (2016).
[49]   Grzywna (2015).
[50]   Nowicka, Kocik (2018).

- Population's structure;
- Population's age, life expectancy;
- Migrations,
- Civilizational problems (e.g. overweight, obesity);
- Problems with substances (alcohol consumption and cigarette smoking);
- Chronic diseases (e.g. cancers, diabetes);
- Available health service resources (number of physicians and their distribution in individual regions of a state, expenditure on health care, barriers and limitation as regards universal accessibility);
- Population's mortality rate with an indication of main causes of deaths (general information and data for specific age groups, e.g. infants);
- Health condition in individual health brackets (children, adolescents, adults and older) – including mental health;
- Chemical and radiological contamination and environmental disasters.

Apart from the presentation of necessary statistics on the above described issues, which illustrate the current situation in a state, authors of a health security reports are responsible for carrying out a detailed analysis, taking into account the following factors:

- Diversification of individual aspects by sex;
- Changes taking place over time;
- Causes of prevalent diseases;
- Consequences of diseases (metabolic and physiological changes);

- Linking the incidents with cultural and social factors (how society's beliefs affect observed health statistics;
- Detailing possible means to counteract the threats.

The quality of reports for the United States, the Americas or the world should be a valuable clue for the authors of such reports in Poland. Their analysis shows what information should be contained in such reports and how comprehensively they should describe the issue of health security.

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