Journal of Health Care and Research
(ISSN: 2582-8967)
Original Article
DOI: https://doi.org/10.36502/2021/hcr.6193

Castles in The Air: A Comparative Analysis of Provincial Outbreak Action Plans in The Event of an Epidemic in Poland

Marcin Kautsch[1*], Kamila Zientek[2]
[1]*Jagiellonian University Medical College, Kraków, Poland*
[2]*Sucha Beskidzka Hospital, Sucha Beskidzka, Poland*

Corresponding Author: **Marcin Kautsch** ORCID iD
Address: Institute of Public Health, Faculty of Health Sciences, Jagiellonian University Medical College Ul. Skawińska 8, 31-066 Kraków, Poland. Email: marcin.kautsch@uj.edu.pl
Received date: 14 April 2021; **Accepted Date**: 29 May 2021; **Published Date**: 07 June 2021

Citation: Kautsch M, Zientek K. Castles in The Air: A Comparative Analysis of Provincial Outbreak Action Plans in The Event of an Epidemic in Poland. J Health Care and Research. 2021 Jun 07;2(2):97-109.

Abstract

This article presents the results of analyzes carried out on all provincial (voivodeship) outbreak action plans in the event of an epidemic in Poland. Voivodeships are obliged to prepare such documents by the law, however, its provisions are imprecise, therefore the content of the plans is diversified. The analytical parts of the documents do not contain basic information (like demographics). The entries are often based on the opinions of the authors and not the data, so the plans are not evidence-based. Although the plans were usually updated before or during the COVID-19 outbreak in Poland, references to the coronavirus are fragmentary. The differences between the plans and their (mostly) poor quality seem to be the result of a mixture of imprecise legislation, lack of ability to write plans, and risk avoidance. This makes the existing documents of little implementation value in the face of the emerging coronavirus threat.

Keywords

Health Policy, Crisis Management, Health Care Management, Pandemic, COVID-19, Outbreak Action Plans, Poland

Introduction

The appearance in Poland of the SARS-CoV-2 coronavirus and the COVID-19 (COV) disease caused by it – at least for now – has not caused such dramatic effects as in many other countries [1], although the number of new infections has not been decreasing [2]. A pandemic is an exceptional situation, and while not everything is predictable, countries need to be prepared for it in some way or develop a concept for dealing with such an exceptional situation, as was explicitly recommended by the World Health Organization (WHO) over 20 years ago [3]. The WHO later developed a pandemic outbreak action checklist and outlined the basic minimum elements to cope with such an outbreak [4].

The current administrative arrangements in Poland mean that securing and organizing the activities of public services during public health crises (such as a pandemic) should be based on voivodeship action plans (there are 16 voivodeships [provinces] in Poland). These action plans are intended to be based on a national plan, which public disclosure requests have identified as the *Polish Pandemic Plan*. However,

this document is not available in the public domain. The only information about it was found in Appendix 8 to the Podkarpackie Voivodeship Outbreak Action Plan [5] and the publication comparing such plans in various European countries [6]. The Ministry of Health states on its website that "The Polish Pandemic Plan is available on the website of the State Sanitary Inspection" [7], but the website does not contain any content other than the message: *"Page not found"* [8]. As no other document of this type is mentioned in the public domain, it can be assumed that the referenced plan is still in force. As mentioned, the Plan is not publicly accessible, which can mean that administration and society have access to basic information concerning actions to be taken in the case of an epidemic. In the other words, these bodies and societies are not fully prepared for an epidemic.

This article presents an analysis of the plans prepared in recent years by individual voivodeships. The plans were verified in terms of their compliance and completeness of the information contained therein in relation to the provisions of Art. 44.2 of the Act on preventing and combating infectious diseases [9]. The content of the Voivodeship plans, as well as the quality of the records of the analyzed documents, were considered.

Method

This article is based on the analysis of existing data – primarily documents available on the websites of Voivodeship Offices as extant on 05/20/20. The abovementioned documents (all 16 of the 16 provinces) were identified, downloaded, and analyzed. The analysis was conducted to examine to what extent the documents contained the information required in relation to the law in question and the quality of the above-mentioned records: what elements of the plans were covered, how they were described, which information was provided in them.

Articles, reports, and internet materials on epidemic / pandemic preparations were also included. Internet sources were identified using a Google search engine based on a combination of words / phrases such as: "pandemic / epidemic" + "plan", "pandemic / epidemic" + "preparation / outbreak action". The search was initially conducted in Polish, later also in English. The collected materials were filtered in terms of the purpose of the article, based on the knowledge and experience of the authors.

Findings

The Statutory Structure of Voivodeship Outbreak Action Plans in The Event of an Epidemic:

The document search revealed that the national Act preventing and combating infectious diseases requires Voivodeships to develop plans in the event of an epidemic and that the plan is required to be renewed every three years and must include (art. 44.2), as follows:

1. the characteristics of potential threats to life or health that may occur in the voivodeship, including the analysis of the risk of infections and infectious diseases in humans;
2. list and arrangement of treatment facilities of the healthcare entity (*Treatment facilities of the healthcare entity" is an official (legal) name of healthcare facilities*) and other public utility facilities within the voivodeship that may be intended for treatment, isolation, or quarantine;
3. the number of people who may undergo treatment, isolation, or quarantine in health facilities of the healthcare entity and other public utility facilities;
4. name lists of people who may be directed to activities aimed at protecting public health against infections and infectious diseases;
5. other information serving to protect public health and necessary for the preparation of the plan.

As one can see, the above provisions are quite general, which seems to be appropriate given the high level status of the Act The analysis presented below showed that voivodeships interpreted these provisions very differently, especially with regard to items 1 (*hazard characteristics and risk analysis*) and 5 (*other information*). The other provisions, i.e. items 2-4 of Art. 44.2 are more precise and less subject to misinterpretation.

The Period of Preparation, Validity, and Key Analytical Elements:

Table-1 shows when and for what period the plans

were developed in individual voivodeships and how the potential threats were characterized. Each item was given a point, except for the risk analysis (the score is explained under **table-1** when describing the risk analysis).

Note that *"Characteristics of potential threats"* is a broad term. For the purposes of the analysis, the authors divided these characteristics into the following parts: *socio-demographic characteristics, assessment of the epidemiological situation, sources of potential threats*, and (required by law) *risk analysis*.

Period of Validity:

Epidemic plans have been developed in all voivodeships. However, not all of them specify how long they are valid. It should also be noted that, apart from two cases, these plans were modified during the epidemic or just before it (the first confirmed case of the coronavirus in Poland appeared on March 4, 2020 [10]). In these two cases, the update took place in mid-2019.

Table-1: Voivodeship outbreak action plans in the event of an epidemic, as of 05/20/20: period of validity, risk characteristics

Voivodeship	APeriod of validity [last update]	Characteristics of potential threats				Rating (max. 5)
		Socio-demographic characteristics	Assessment of the epidemiological situation	Characteristics of the sources of infection / potential threat	Risk analysis[1]	
Lower Silesian	07/2018-06/2021 [10-2019]	+	+	–	Characteristics (+)	3
Kuyavian-Pomeranian	not available [05/2020]	+	+	+ (COV)	Characteristics (+)	4
Lublin	not available [03/2020]	–	–	+ (COV)	Analysis (++)	3
Lubusz	not available [02/2020]	+	–	–	Characteristics (+)	2
Łódź	not available [2020]	+	+ (COV)	–	Opinions	2
Lesser Poland	06/2018-05/2021 [02/2020]	+	+ (COV)	+	Analysis (++)	5
Mazovian	not available [03-2020]	+	–*	+	Opinions	2
Opole	not available [2020]	–	–	+	Opinions	1
Subcarpathian	not available [04-2020]	–	–	+ (COV)	-	1
Podlaskie	2018-2020 [04/2020]	+	+ (COV)	–	Opinions	2
Pomeranian	06/2019-05/2022 [06/2019]	–	–	+	Analysis (++)	3
Silesian	not available [02/2020]	–	–	–	Analysis (COV) (++)	2
Holy Cross	not available [07/2019]	–	+	–	Analysis (++)	3
Warmian-Masurian	2018-2020 [05/2020]	+	+	+	Analysis (++)	5
Greater Poland	not available [03/2020]	+	–	–	Characteristics (+)	3
West Pomeranian	2018-2020 [05/2020]	+	+	–	Opinions	2

1 - The meaning of individual phrases is explained in the description below the table – they are marked in bold.

(COV) - information / references to the SARS-CoV-2 coronavirus
* - The document states: "(...) Potential threats to life or health that may occur in the Mazovian Voivodeship are described in detail in the Crisis Management Plan of the Mazovian Voivodeship and constitute Appendix No. 1". Despite the searches, the authors were unable to find either this plan or an attachment to it.
Source: own study based on documents available on the websites of Voivodeship Offices

Characteristics of Potential Threats:

- Socio-Demographic Characteristics:

These characteristics varied widely in terms of content and quality. It was considered that the plans included socio-demographic characteristics, provided that at least data on the number of the population was presented. However, in some cases, the data in the documents were not relevant to the intention of the plan. For instance, one plan estimated the level of afforestation in the voivodeship. Despite such a liberal approach, only in the case of 10 voivodeships it can be said that socio-demographic characteristics are part of the plan.

- Assessment of the Epidemiological Situation:

A relatively comprehensive assessment of the epidemiological situation was presented in half of the plans (8), with information (with different levels of quality) on the current epidemiological situation (i.e. statistics on the incidence of infectious diseases for the last 2-3 years) covered the most common infectious disease entities. With the exception of one voivodeship (Kuyavian-Pomeranian), the information provided does not contain any comparisons / references (e.g. national average) which one could use to assess the situation, understand it through the prism of what is happening elsewhere, and how needs are shaped. Incidence statistics included an overview of the incidence of infectious disease entities and a preliminary assessment of the potential risk of infection. Where there was a lack of detailed analysis, there was, therefore, no basis for formulating conclusions and recommendations. The evaluation often ended with the statements: *"we assess the situation to be good; and, the risk is small."*. These statements were not supported by the arguments made earlier and can therefore be considered as the authors' opinion. The fact that the assessment of the epidemiological situation is not required by law probably explains why six voivodeship plans do not have it.

- Sources of Potential Threats:

The plans include content describing the sources of a potential threat (their types, causes, consequences and methods of counteracting them) – based on a wide catalogue of potential threats (i.e. natural disasters, traffic accidents, biological threats, etc.). The description of these elements most often boiled down to presenting a list, without literature sources. The characteristics carried out in this way were included in 8 plans. In 5 documents, the authors presented only the above content, omitting the assessment of the actual epidemiological situation, in 3 such assessment is present. It can be presumed that the authors of these 5 above-mentioned plans tried to systematize and present the spectrum of potential threats. However, using only a generic approach, without attention to local context and in-depth analysis, does not offer a suitable response to the pandemic threat. In only three documents (marked as "COV") the description of potential sources of infection contained references to the description of the current epidemiological situation, although – let us repeat – the plans were updated at the time when the pandemic was announced, and even when the virus began also be present in Poland.

- Risk Analysis:

In order to be able to compare the *"human infection and infectious disease risk analysis"* in the various plans, the following categories were created: analysis, characteristics, and opinions – used in **Table-1** and explained below.

With reservations regarding the quality of the content in these sections of the plans, documents containing tables accompanied by a description (although not always related to the content contained in the tables), e.g. statements regarding the estimated risk / probability of an epidemic were considered to be the analysis compliant with the provisions of the Act. Few plans (6) present selected disease entities and attempts were made to estimate the risk in relation to the probability or frequency of the occurrence of a given phenomenon / disease entity and its potential impact on public health (risk of an epidemic, potential effects, possible diagnostics or priority of a given threat / entity). sickness). The method of selecting disease entities used for the analysis, assigning them to ranks / priorities on the basis of which the probability of a given factor was estimated or the epidemic risk assessment, are various: not described, strongly heterogeneous, or approximately accurate. 2 points

were awarded for the preparation of a document drafted in the above manner in **Table-1**.

The characteristics (for which 1 point was awarded) were defined as 'unsupported', 'several-sentence observations' or 'observations presented in 4 cases'. Similar to the above-mentioned assessment of the epidemiological situation it can this section was often summarized with the statement: *"we assess that the situation is good; and, the risk is low"*. These documents lack the basis, methodology or even statistical data to help determine what is or is not a threat.

Opinions (without points awarding) are copied (without providing the source) descriptions of the specificity of a given threat / disease entity, and lack an analytical approach to risk assessment (5 cases). Sometimes predictions (also without justification) are intertwined with the description of the epidemiological situation or the characteristics of potential threats, taking the form of perfunctory statements.

List of Infections and Infectious Diseases:

Common to all documents – regardless of the quality level of the analysis performed and/or the lack thereof – is the implementation of statutory requirements in the form of listing more or less detailed characteristics of infections and infectious diseases, the list of which is specified in the annex to the Act. In some plans it was a complete list, in others it amounts to selected items. All plans identified the possibility of an influenza pandemic as the greatest threat to public health. The remaining disease entities listed in the Act, although not all, also appear frequently in documents and are analyzed. The number of analyzed units varies significantly between voivodeships. Without specifying the selection criteria used by the authors of the plans to select them, it is not possible to assess the legitimacy of their inclusion on the list. Differences in the way of developing this part of the plans meant that no analysis of their content was undertaken.

Structure of The Analytical Part of the Plans – Summary:

Summarizing the above data, it can be stated that, with the reservations about the quality discussed above:

- 10 plans contain socio-demographic characteristics,
- 8 – an assessment of the epidemiological situation, including information / reference regarding the coronavirus in 3 of them (The SARS-CoV-2 coronavirus infection was covered by the regulations on preventing and combating infectious diseases by the Regulation of the Minister of Health [11]).
- In 8, the characteristics of the sources of infection / potential threat are given, including 3 – related to the above-mentioned virus.
- The risk analysis / characterization was included in 10 plans, in 5 – only unsupported opinions, and in 1 – none at all.

The voivodeship plans seem to show a significant gap in terms of the characteristics of potential threats:

- 3 voivodeships developed all four elements presented in **Table-1**,
- 1 – three of them
- 10 – two
- 2 – one
- There were references to COV in 7 documents, with these references only in one element of the plans.

Treatment, Isolation, Quarantine:

The emergence of the virus made it necessary to create dedicated hospitals for the needs of the pandemic or isolation places for infected / suspected people. The examined plans show an unusual scale of diversification of declarations regarding facilities and places of treatment / isolation in individual voivodeships (**Table-2**). At the same time, there are no data for the largest voivodeship in terms of territory and population – Masovian, which would probably significantly affect the overall results.

In the event of an epidemic, there were planned, on average, slightly more than 3.5 places (per 10,000 population) in healthcare entities. In addition, more than 27 places (per 10,000 population) in other public facilities were to be mobilized. These places were also to be used for isolation and quarantine (the Act also provided for the possibility of quarantine at home).

The total average number of places was therefore to be almost 31 per 10,000 population.

The following voivodeships differ significantly from the average: Lower Silesian, Silesian, and Lesser Poland (the indicator does not exceed 7), and Opole, Warmian-Masurian, and West Pomeranian (over 70). The plans do not answer the question about the actual state of preparation of the analyzed number of places, which means that it is impossible to say whether there are "as many as" 6,062 places in healthcare institutions in the Opole Voivodeship, and "only" 251. It is not known whether the authorities of the Opole Voivodeship assume that "*if necessary, we have 6,000 beds*", no matter what they are and whether they are able to accommodate people to be isolated; and the authorities of the Lubusz Voivodeship are sure that their beds are able to accommodate patients immediately and provide them with complete isolation. However, it is not possible to verify what the given values mean.

Table-2: Voivodeship outbreak action plans in the event of an epidemic, as of 05/20/20: facilities that can be used in the event of an epidemic

Voivodeship	Medical entities / other public utility facilities that may be intended for treatment, isolation or quarantine	Estimated number of places: nominal / per 10,000 population * in:		
		Healthcare entities	Other public facilities that may be intended for treatment, isolation or quarantine	Total
Lower Silesian	8 / -	331 / 1.1	- / -	331 / 1.1
Kuyavian-Pomeranian	16 / 162	559 / 2.7	7643 / 36.8	8202 / 39.5
Lublin	28 / 171	499 / 2.4	33366 / 157.6	33865 / 159.9
Lubusz	08 / 79	251 / 2.5	3837 / 37.8	4088 / 40.3
Łódź	4 / 105	201 / 0.6	4546 / 13.4	4747 / 14.0
Lesser Poland	17 / 16	620 / 1.8	1676 / 4.9	2296 / 6.8
Mazovian	*	* / -	* / -	* / -
Opole	43 / 22	6062 / 61.4	1021 / 10.3	7083 / 71.8
Subcarpathian	7 / 40	269 / 1.3	1028 / 4.8	1297 / 6.1
Podlaskie	8 / 69	222 / 1.9	4162 / 35.2	4384 / 37.1
Pomeranian	36 / 16	1161 / 5.0	1950 / 8.4	3111 / 13.3
Silesian	7 / 20	169 / 0.4	2145 / 4.7	2314 / 5.1
Holy Cross	11 / 21	404 / 3.3	1506 / 12.1	1910 / 15.4
Warmian-Masurian	5 / 42	104 / 0.7	10621 / 74.3	10725 / 75.1
Greater Poland	6 / 32	106 / 0.3	3454 / 9.9	3560 / 10.2
West Pomeranian	23 / 123	788 / 4.6	12810 / 75.3	13598 / 79.9
Poland (without the Masovian Voivodeship)	227 / 918	11746 / 3.6	89765 / 27.2	101511 / 30.8

* - The document states that the analyzed data can be found *"in the annexes"*; there are no such attachments in the plan (or on the website)

Source: own study based on documents available on the websites of Voivodeship Offices and data on the number of population, as of 01/01/2019 [13]

Hospitals and facilities can vary greatly in size. A detailed discussion and analysis of the number of hospitals and facilities are therefore unjustified. However, it can be said that there are also considerable differences here. Some voivodeships wanted to rely solely on hospitals, others primarily on them, and still others planned to open a large number of public facilities, far exceeding the number of hospitals. The latter policy seems justified – there is no point in maintaining large facilities all the time, which will be unused if an epidemic does not occur. A better solution is the place that has other functions outside the pandemic time, and which can be designated as places of isolation in case of need. Unless, of course, this depends on these places actually being able to be prepared on time and fulfill their assigned role. Unless, of course, these places of isolation are actually ready in time and can fulfill their assigned role.

Other Information to Protect Public Health and Necessary for The Preparation of the Plan:

Similar interpretation problems as point 1 of Article 44.2 related to the characteristics of potential threats are caused by point 5 of this article, referring to the need to submit *"other information serving the protection of public health and necessary for the preparation of the plan"*. **Table-3** lists the categories of information found in most documents. It also presents the extent to which the plan contains elements that (in the opinion of the authors of this study) seem crucial during an emergency situation and the occurrence of all the above-mentioned items.

Taking into account the purpose for which the discussed documents were to be prepared, it is important that they contain (the number of points awarded for inclusion in their plan is given in brackets):

1. Defining the *rules for announcing / canceling the epidemic* (1 point).
2. Description of *tasks and competences* of the appropriate levels: *services / organizational units of the voivodeship* in order to be able to enforce the provisions of the plan (1 point).
3. Presentation of their schemes (*procedures / algorithms / rules of conduct*), conditioning the operation of the above-mentioned services (3 points).
4. Development of templates of *administrative decisions* (regulations / forms, referrals to work) (1 point).
5. Specification of the rules to be followed, that is (3 points):
    a. transport to quarantine facilities,
    b. transport and handling of the corpses,
    c. disinfection and disposal procedures or handling of infectious material
6. Determining the principle of informing the community about the activities undertaken (media and social *communication*) (1 point).
7. Designating institutions (*entities for cooperation / involvement*) (1 point) and providing the method of contact with them (*contact details*) (1 point).
8. Specifying who and from what funds will cover the implementation of the above-mentioned activities (*financing of activities*) (1 point).

The plans have differently characterized" other *information serving to protect public health and necessary for the preparation of the plan"*. In:

- 14 cases, procedures, algorithms, and rules of conduct were presented (12 – graphically).
- Principles of announcing / canceling the epidemic and administrative decisions – 13,
- transport – 11,
- list of institutions for cooperation – 10, with 9 providing contact details; as well as disinfection procedures.
- 8 – dealing with dead bodies and the tasks and powers of the services.

Remaining issues – in fewer plans. In individual cases (not included in **Table-3**), the provisions concern the principles of providing psychological assistance, there is a list of funeral homes that have reported their readiness to take action in the event of death due to a highly contagious disease or to provide postal services in areas at risk.

Summary of The Structure and Content of Epidemic Plans

The analysis of the collected material allows us to conclude the following.

1. All voivodeships obliged by the Act have developed documents relating to the epidemic.
2. Not all documents have been updated recently (i.e. the period since the outbreak of the pandemic in China or its appearance in Europe). The updates – although apparently prepared in connection with the emerging threat – did not always contain references to the coronavirus.

Table-3: Voivodeship outbreak action plans in the event of an epidemic, as of 05/20/20: Other elements included in the outbreak plan

Voivodeship	Outbreak announcement / cancellation policy	Tasks and competences of services / organizational units	Procedures, algorithms or rules of conduct, including graphic (G) / other *	Administrative decisions	Transport: to quarantine sites / corpses / disinfection and disposal procedures / carcass handling	Communication	List of institutions for cooperation / contact details	Financing of activities	Rating (max. 13)
Lower Silesian	+	+	+(G) / –	+	+ /+ / +	–	+ / +	–	10
Kuyavian-Pomeranian	–	–	– / –	–	– / – / –	–	– / –	–	0
Lublin	–	–	– / –	+	– / – / –	–	+ / +	–	3
Lubusz	+	+	+(G) / –	+	+ / + / –	–	+ / +	–	9
Łódź	+	+	+(G) / +	+	+ / + / +	+	+ / +	+	13
Lesser Poland	+	+	+(G) / –	+	+ / + / +	–	+ / +	+	11
Mazovian	+	–	+(G) / –	–	+ / + / –	+	– / –	–	6
Opole	+	+	+(G) / +	+	+ / + / –	–	+/ –	–	9
Subcarpathian	–	–	+(G) / +	+	+ / + / +	+	– / –	–	8
Podlaskie	+	+	+(G) / –	+	+ / + / –	+	– / –	+	9
Pomeranian	+	–	+(G) / +	–	– / – / –	–	– / –	–	4
Silesian	+	–	+(G) / +	+	+ / + / +	+	+ / +	+	12
Holy Cross	+	+	+(G) / –	+	+ / – / +	+	+ / +	–	10
Warmian-Masurian	+	–	+(G) / –	+	+ / – / +	–	+ / +	–	8
Greater Poland	+	–	+ / –	+	– / – / –	–	+ / +	–	5
West Pomeranian	–	+	+ / –	–	– / – / +	–	– / –	–	3

* - points were scored for (max 3 points): description of the procedures of conduct (+), the presence of graphic elements (G) and other procedures [scheme informing the Chief Sanitary Inspectorate, crisis response procedure, Early Warning and Response System, etc.] (+)

Source: own study based on documents available on the websites of Voivodeship Offices

3. The plans contain information which, according to the Act, "*is to protect public health*". This information should therefore condition the effectiveness of the plans – and be "*essential to the preparation of the plan*". Referring to the concept of 5W and H (what?, who?, when?, where?, why?, and how?) and the literature on the subject, the implementation of the goal contained in the plan requires answers to the following questions [13]:
    a. "who? /what?" – i.e. description of tasks and competences of individual services and organizational units;
    b. "when? /how?" – i.e. general rules of conduct / cooperation;
    c. "for how much?" – description of funding for anti-epidemic measures.

    While all plans – better or worse – answer the questions included in the first two points, only four of them – the last one.
4. The scope, content, and quality of the plans are highly diversified and many of them may raise serious concerns. For example, in some of them:
    a. The population of the voivodeship was not given, and without the above data, predictions concerning the number of beds / quarantine places were prepared.
    b. There was no analysis of the health status of the population, including e.g. identification of risk groups, chronic diseases, main causes of death, etc.
    c. The analysis of infectious diseases (including deaths from them) is poor.
    d. There have been no predictions of potential sites that in the event of an epidemic, such as hospitals, nursing homes, large production plants / service companies.
5. The risk analysis in each plan concerns selected disease entities from the catalog specified in the Act. However, the criteria for selecting the diseases that have been described are not given. What is called a risk analysis, in some plans comes down to the title of the chapter – it does not contain anything that can be called an analysis.
6. The plans did not provide information on the methodology used to estimate the number of treatment / quarantine sites. The number of these places varies greatly from one plan to another.
7. A significant number of the plans is prepared taking into account various types of graphic elements – which makes it easier to understand the content and follow the rules / instructions given in them, which means that it can be particularly useful when it is necessary to act quickly.
8. A number of provisions of the plans refer to appendices, some of which are not available. While it is understandable that, for example, personal lists of people referred to action in the event of an epidemic should not be disclosed (therefore their analysis has not been carried out in this document), there is no public access to other attachments with information that may prove to be critical. This is the case, for example, in the case of Masovian voivodeship, while the Lesser Poland provides all attachments to the public.

Discussion and Conclusions

In the course of writing the article, several circumstances were encountered that contributed to the limitations of the study. The focus on so many documents made it difficult to analyze similar plans in other countries in depth. At the same time, from the very beginning, the authors' intention was to show how epidemic plans are created in Poland, and not to compare them with the similar documents in other countries – such a study (extremely interesting) was not possible due to the previous lack of any description of epidemic plans in Poland and their analysis. Another issue was the quality of the plans. Due to the lack of a pattern according to which they were to be created, each plan can be considered a unique document, and thus making comparisons difficult. Therefore, it can be assumed that the work undertaken was the beginning of the research, which in the future may lead to a full picture of how individual regions in Europe or in the world are prepared for the outbreak of an epidemic. The authors hope that their work will be continued.

From the moment when the outbreak of the pandemic occurred in China, the appearance of the coronavirus in Poland was very likely, and the authorities should have anticipated and prepared for this threat. Some voivodeships updated their epidemic

plans at that time, although not all updates contained references to the coronavirus, which should be considered at least a serious omission. Since the plans have been prepared – apparently as a response to an emerging threat – why are there such references in only 7 plans, and only one shows a diagram of how to deal with a suspected coronavirus infection? It should also be considered at least of concern that the references to the coronavirus appear in individual sections of the plans, in isolation from others, and they do not continue in the form of a coherent response to the emerging threat. This means that, for example, COV has been identified as a risk, but its etiology has not been described and its risk has not been assessed, or that they have been assessed but not characterized as posing a threat. The impression is that the mention of the virus has been an afterthought, once there was information that the virus had appeared and that the plans were only updated reactively without reference to the overall strategy of pandemic response.

If only the titles of the chapters of the discussed documents were assessed, it could be concluded that all voivodeships fully implement the provisions of the Act. However, the Act does not specify quality requirements regarding the content. Although it should be considered understandable, it should be further specified in lower-level legal acts or guidelines of the Ministry of Health. The provisions of Article 44.2 point 1 and 5 results in the fact that the content of the plans depends on the knowledge and competencies of their authors, which – as the analysis results show – seem mostly insufficient. Each voivodeship has adopted its own rules on what to describe and how. Perhaps the voivodeships received divergent responses by contacting various people in the Ministry when they consulted their plans; but this would also indicate a poor communications strategy on the part of the Ministry, which – apparently – was unable to coordinate work on the plans and their updating, neither in earlier periods nor in times of increasing danger.

Reading the plans makes one reflect that their authors would like the documents to be voluminous. However, the above was implemented not by detailed analysis of the population to be secured, possible threats or descriptions of activities, but by adding, or in fact copying, content that was not of great importance from the point of view of the operationalization of the plan (e.g. characteristics of the sources of infection – without specifying the literature for which was based). Quantity evidently trumps quality, and taking initiative and providing ideas of coping with the threat is subsumed within a culture of obedience. This suggests that we are dealing with a situation in which officials responsible for health are afraid to criticize imprecise regulations or ask their superiors for detailed guidelines. It is difficult to judge the rationale behind the plan-makers and whether they were aware that by creating plans in such one way, they are not preparing at all or not well enough to deal with problems when they arise. As a result, something was created that can be described as acting according to a mental scheme: plans are not preparing the voivodship for a threat, but, at least, they are developed in accordance with the law.

The low quality of the analytical part makes one question the provisions of the planning part. The deficiencies in question relate to basic issues such as, for example, the number and structure of the population, or factors influencing the risk of pathogen infection (health status, high-risk groups, comorbidities, etc.). Based on these data gaps, activities are planned or the number of beds / isolation places. If there is no reliable diagnosis of the situation, then what are these activities planned or the estimated need for beds based on? The differences in the values of the number of beds quoted above, reaching tens of thousands of percent clearly indicate the lack of coherent assumptions regarding the calculations, as a result of which the obtained numbers in fact describe completely different issues. It is possible that in many cases the authors assumed "*the more places shown, the better*". The plans do not describe the provision of human resources, equipment, and therapeutic facilities, the principles of its organization, and the network of connections between relevant institutions at the time of infection. The above would indicate that the discussed figures refer only to the beds/places of isolation, but it is not known who and how would service these beds/places.

This can be attributed to the failure of preparations at the central level. The lack of a Polish Pandemic Plan in the public domain makes it impossible to analyze its provisions. In 2016, however, there were reservations in the literature as to its topicality – due to the fact that it was prepared before the epidemics of 2009 – plans prepared before that date were assessed lower than those that were updated based on the experiences of the influenza A/H1N1v pandemic [6]. It should be noted that articles on pandemic preparedness are widely available, both older [14] and newer [15,16]. Patterns of conduct are also shown, including simplified [17] and extensive (e.g. the WHO documents [4] referred to above). It can therefore be concluded that before the current pandemic appeared, there were many sources, and institutions eager to learn how to deal with it had many models which they could use to prepare their plans.

It is ironic that on the website of the Łódź Voivodeship Offices there is a WHO document from 2006 translated by the Ministry of Health [18] and containing an expert study of epidemic scenarios, basic recommendations for action, and other valuable tips about the plan, most of which were not included in the plan this and many other voivodeships.

The disappearance of the Polish Pandemic Plan from the public domain may indicate that it was outdated or of poor quality. If voivodeship plans were developed on the basis of this pattern, then one can understand why and their quality is so low. And the bureaucratic mindset and the fear of doing something not according to the pattern meant that the effect is what it is.

Table-4 with the points awarded above is presented below summarizes the results of the conducted analysis.

When interpreting the above results, it should be remembered that points were awarded in a very liberal way, so the highest score – 16/18 points does not mean

Table-4: Voivodeship outbreak action plans in the event of an epidemic, as of 05/20/20: final evaluation

Voivodeship	Analytical part Rating (max. 5)	Planning part Rating (max. 13)	Rating (max. 18)
Lesser Poland	5	11	16
Łódź	2	13	15
Silesian	2	12	14
Warmian-Masurian	5	8	13
Lower Silesian	3	10	13
Holy Cross	3	10	13
Lubusz	2	9	11
Podlaskie	2	9	11
Opole	1	9	10
Subcarpathian	1	8	9
Greater Poland	3	5	8
Masovian	2	6	8
Pomeranian	3	4	7
Lublin	3	3	6
West Pomeranian	2	3	5
Kuyavian-Pomeranian	4	0	4

Source: own study

that the plan meets 89% of the criteria, but that in so many cases it was found that something related to the criterion was included in the plan. One should also be aware that the effectiveness of even the best plans, not supported by previous analysis, is at least questionable. The plans that scored a lot of points for the planning part, but not much for the analytical part, can therefore be said to be castles built in the air.

It seems that the procedure for creating documents presented in this article and the results obtained are the effect of a mixture of inaccurate legislation, inability to write plans, and low-risk inclination, hence the different interpretation of the above-mentioned records and the content of these characteristics, as well as the lack of attempts to do something more responsive to a suddenly appearing threat. The above allows concluding that the existing documents (as of May 20, 2020) had little implementation value.

After analyzing the discussed documents, it should be stated that it is necessary to:

1. Make the base document: The *Polish Pandemic Plan* public, and if it does not exist, create it. This will allow for the adoption of a pattern on the basis of which provincial plans can be created.
2. Put more attention to the quality of created documents. Those that were in force at the time of writing this article are of low quality.

Failure to comply with the above recommendations will cause the value of the documents discussed in this article to be still questioned.

Competing Interests

The author read and approved the final version of the manuscript. The author has no conflicts of interest to declare.

References

[1] Worldometers. COVID-19 CORONAVIRUS PANDEMIC. 2020 [cited 2020 Jul 26]. Available from: https://www.worldometers.info/coronavirus/#countries.

[2] Worldometers. COVID-19 CORONAVIRUS PANDEMIC. Poland. 2020 [cited 2020 Jul 26]. Available from: https://www.worldometers.info/coronavirus/country/poland/.

[3] World Health Organization. Influenza pandemic preparedness plan : the role of WHO and guidelines for national and regional planning, Geneva, Switzerland, April 1999. Switzerland: World Health Organization; 1999 Apr [cited 2020 Jul 21]. Available from: https://apps.who.int/iris/handle/10665/66155

[4] World Health Organization. WHO checklist for influenza pandemic preparedness planning. Switzerland, April 1999. Switzerland: World Health Organization; 2005 May [cited 2020 Jul 21]. Available from: https://apps.who.int/iris/handle/10665/68980

[5] Podkarpacki SW. Załącznik nr 8 do Wojewódzkiego Planu Działania na Wypadek Wystąpienia Epidemii: Plan Pandemiczny dla województwa podkarpackiego - przygotowany w oparciu o Polski Plan Pandemiczny. 2020.

[6] Droogers M, Ciotti M, Kreidl P, Melidou A, Penttinen P, Sellwood C, Tsolova S, Snacken R. European Pandemic Influenza Preparedness Planning: A Review of National Plans, July 2016. Disaster Med Public Health Prep. 2019 Jun;13(3):582-92. [**PMID**: 31328711]

[7] Zdrowia M. Ministry of Health. Flu (grypa). Poland: gov.pl; 2019 Nov 19 [cited 2020 Jul 2]. Available from: https://www.gov.pl/web/zdrowie/grypa

[8] Chief Sanitary Inspectorate. Seasonal flu (Grypa sezonowa). Poland: gov.pl [cited 2020 Jul 2]. Available from: http://gis.gov.pl/zdrowie/choroby-zakazne/287-grypa-sezonowa

[9] Chancellery of the Sejm of the Republic of Poland. Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 6 czerwca 2019 r. w sprawie ogłoszenia jednolitego tekstu ustawy o zapobieganiu oraz zwalczaniu zakażeń i chorób zakaźnych u ludzi [Announcement of the Marshal of the Sejm of the Republic of Poland of 6 June 2019 on the publication of the uniform text of the Act on preventing and combating infections and infectious diseases in humans]. Poland: ISAP (Internetowy System Aktow Prawnych); 2019 Jun 06. Available from: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20190001239

[10] Ministry of Health. Pierwszy przypadek koronawirusa w Polsce [The first case of coronavirus in Poland]. Poland: gov.pl; 2020 Mar 04 [cited 2020

Jul 02]. Available from: https://www.gov.pl/web/zdrowie/pierwszy-przypadek-koronawirusa-w-polsce

[11] Chancellery of the Sejm of the Republic of Poland. Rozporządzenie Ministra Zdrowia z dnia 7 marca 2020 r. w sprawie wykazu chorób powodujących powstanie obowiązku kwarantanny lub nadzoru epidemiologicznego oraz okresu obowiązkowej kwarantanny lub nadzoru epidemiologicznego [Regulation of the Minister of Health of 7 March 2020 on the list of diseases causing the obligation to quarantine or epidemiological supervision and the period of compulsory quarantine or epidemiological supervision]. Poland: gov.pl; 2020 Mar 07. Available from: https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000376

[12] GUS. Powierzchnia i ludność w przekroju terytorialnym w 2019 roku [Area and Population in the territorial profile in 2019]. Warszawa: Główny Urząd Statystyczny. 2019 Jul 22 [cited 2020 Jun 05]. Available from: https://stat.gov.pl/obszary-tematyczne/ludnosc/ludnosc/powierzchnia-i-ludnosc-w-przekroju-terytorialnym-w-2019-roku,7,16.html

[13] Kisielnicki J. Zarządzanie organizacją [Organization management]. 2nd ed. Poland: Wyższa Szkoła Handlu i Prawa in Warsaw; 2005.

[14] Barnett DJ, Balicer RD, Lucey DR, Everly GS Jr, Omer SB, Steinhoff MC, Grotto I. A systematic analytic approach to pandemic influenza preparedness planning. PLoS Med. 2005 Dec;2(12):e359. [**PMID**: 16255619]

[15] Sanford S, Polzer J, McDonough P. Preparedness as a technology of (in)security: Pandemic influenza planning and the global biopolitics of emerging infectious disease. Soc Theory Health. 2016;14(1):18-43. [**PMID**: 32226315]

[16] Shearer FM, Moss R, McVernon J, Ross JV, McCaw JM. Infectious disease pandemic planning and response: Incorporating decision analysis. PLoS Med. 2020 Jan 9;17(1):e1003018. [**PMID**: 31917786]

[17] Staples J. Preparing for a Pandemic. Harvard Business Review; 2006 May [cited 2020 Jul 02]. Available from: https://hbr.org/2006/05/preparing-for-a-pandemic

[18] Davoli E, World Health Organization. Regional Office for Europe. A practical tool for the preparation of a hospital crisis preparedness plan, with special focus on pandemic influenza / edited by Enrico Davoli. Copenhagen: WHO Regional Office for Europe; 2006. Available from: https://apps.who.int/iris/handle/10665/107779

Keywords: Health Policy, Crisis Management, Health Care Management, Pandemic, COVID-19, Outbreak Action Plans, Poland