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# LESSONS LEARNT FROM THE COVID-19 PANDEMIC: A QUALITATIVE STUDY OF HOSPITAL MANAGEMENT AND PREPAREDNESS IN ALMATY

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**Abstract**

*Relevance.* The COVID-19 pandemic placed unprecedented pressure on hospital systems, exposing structural vulnerabilities in resources, governance, and workforce capacity. In Kazakhstan, particularly in Almaty, major system reorganizations, including modular COVID-19 hospitals, were implemented; however, qualitative data on healthcare managers' views on their effectiveness and preparedness for future challenges remain limited.

*Objective:* This study aims to explore healthcare managers' experiences of hospital functioning during the COVID-19 pandemic in Almaty, assess the perceived effectiveness of implemented measures, and identify key factors influencing preparedness and resilience for future pandemics.

*Materials and methods.* A qualitative study design was employed using semi-structured in-depth interviews. Sixteen healthcare managers (5 senior-level and 11 mid-level) from multidisciplinary hospitals in Almaty were recruited through purposive sampling via professional WhatsApp groups. Data were collected in the first quarter of 2026 through online interviews lasting 15-20 minutes. Interviews were audio-recorded, transcribed verbatim, and analyzed using inductive thematic analysis.

*Results.* Seven interrelated topics were identified: (1) hospital overload as a manifestation of systemic unpreparedness; (2) resource constraints, with oxygen infrastructure as a critical bottleneck; (3) modular COVID-19 hospitals as a key adaptive strategy; (4) the importance of timely and coordinated organizational responses; (5) workforce well-being as a core determinant of system performance; (6) partial preparedness for future pandemics; and (7) the need for an integrated and adaptive preparedness system. Modular hospitals were perceived as a turning point in the pandemic response, improving capacity and system coordination. Despite improvements, persistent challenges related to workforce shortages, governance, and digital infrastructure remain.

*Conclusion.* Hospital system performance during the COVID-19 pandemic was shaped by the interaction of resources, governance, and workforce resilience. The findings highlight the need for integrated and adaptive health system approaches, including scalable infrastructure, strengthened workforce policies, improved governance, and enhanced digital systems, to ensure preparedness for future public health emergencies.

***Keywords:*** *COVID-19, hospital management, health system resilience, pandemic preparedness, qualitative research, Kazakhstan.*

## Introduction

The COVID-19 pandemic, first identified in December 2019 in Wuhan, China, rapidly evolved into a global public health emergency, profoundly affecting healthcare systems worldwide [1-3]. The rapid international spread of the virus led the World Health Organization to declare COVID-19 a pandemic in March 2020 [4].

The pandemic placed unprecedented pressure on health systems worldwide, particularly on hospital-based care. Rapid increases in inpatient admissions, combined with limited resources and

workforce constraints, exposed structural vulnerabilities in healthcare systems and challenged their capacity to respond effectively [5-7].

Globally, hospitals faced critical shortages of beds, medical personnel, personal protective equipment (PPE), and essential resources, including oxygen supplies and intensive care capacity [8]. At the same time, healthcare workers experienced high levels of stress, burnout, and infection risk, further compromising system performance [9]. These challenges highlighted the importance of health system resilience, defined as the ability to absorb, adapt, and respond to shocks while maintaining essential functions [10].

In response, many countries have implemented emergency measures such as hospital reprofiling, centralized patient routing, and the rapid deployment of temporary or modular healthcare facilities to expand surge capacity [11; 12]. However, the effectiveness of these measures varied across local contexts, governance structures, and resource availability.

In Kazakhstan, and particularly in Almaty, the pandemic led to significant reorganization of hospital services, including the establishment of modular COVID-19 hospitals and the redistribution of patient flows. While these interventions contributed to stabilizing the system, there remains limited qualitative evidence on how healthcare managers perceived their effectiveness and what lessons can be drawn to inform future preparedness. Understanding healthcare managers' perspectives is essential, as they play a key role in decision-making, resource allocation, and organizational adaptation during health crises. Their experiences provide valuable insights into both operational challenges and system-level weaknesses.

This study aimed to explore healthcare managers' experiences of hospital functioning during the COVID-19 pandemic in Almaty and to assess the perceived effectiveness of measures implemented to optimize inpatient care. Given the increasing frequency of emerging and re-emerging infectious diseases, including outbreaks such as Ebola and the global COVID-19 pandemic, this study also aimed to examine hospital systems' readiness for future public health emergencies. Specifically, the study sought to identify key challenges related to resource availability, organizational management, and workforce well-being; determine the main factors influencing hospital performance; and outline priority directions for strengthening the preparedness and resilience of hospital systems in the context of future epidemics and pandemics.

*Objective:* This study aims to explore healthcare managers' experiences of hospital functioning during the COVID-19 pandemic in Almaty, assess the perceived effectiveness of implemented measures, and identify key factors influencing preparedness and resilience for future pandemics.

**Methods and materials**

*Study Design:* The study employed a qualitative research design using semi-structured in-depth interviews. The approach was chosen to explore in detail the perceptions and experiences of health managers regarding the effectiveness of measures implemented to optimize hospital performance during the COVID-19 pandemic, and to identify key challenges and areas for improvement in preparedness for future pandemics.

*Study setting and participants.* The study was conducted among mid- and senior-level managers of multidisciplinary hospitals in Almaty. A purposive sampling strategy was used to recruit participants with relevant managerial experience during the COVID-19 pandemic. Eligible participants included hospital directors, deputy directors, and department heads who were directly involved in organizing inpatient care during the pandemic. Participants were invited through professional WhatsApp groups commonly used by healthcare managers in Almaty for communication and information exchange. A total of 16 participants were included in the study. Recruitment continued until thematic saturation was achieved, defined as the point at which no new topics or insights emerged from additional interviews. No participants refused or withdrew from the study.

*Data collection.* Data were collected during the first quarter of 2026. All interviews were conducted online using a semi-structured interview guide developed based on prior quantitative findings and a review of the relevant literature. The interviews were conducted by a researcher with a background in public health and formal training in qualitative research methods. Participants were informed of the study's purpose and the researcher's role prior to the interviews. No non-participants were present during the interviews. The interview guide covered six thematic domains: (1)

system-level challenges, (2) resource availability, (3) organizational and management practices, (4) healthcare workforce well-being, (5) determinants of hospital performance, and (6) preparedness for future pandemics (Application 1). The full interview guide is provided in Supplementary Material 1. Each interview lasted approximately 15-20 minutes. With participants' informed consent, interviews were audio-recorded and subsequently transcribed verbatim for analysis. No prior relationship existed between the interviewer and the participants. To minimize potential bias, reflexivity was maintained through field notes and regular discussions within the research team throughout data collection and analysis. No repeat interviews were conducted.

*Data analysis.* Data were analyzed using thematic analysis following an inductive approach, as described by Braun and Clarke [13]. The analysis involved several stages: familiarization with the data, initial coding, grouping of codes into categories, identification of overarching topics, and interpretation. Coding was performed manually by one researcher and independently reviewed by another member of the research team to ensure consistency. Coding decisions were reviewed iteratively, and discrepancies were resolved through discussion within the research team. Emerging topics were continuously refined through team discussions to enhance analytical rigor. Due to time constraints, transcripts were not returned to participants for correction, and participant validation of findings was not conducted.

*Trustworthiness:* To ensure the rigor of the qualitative study, several strategies were applied. Credibility was enhanced by including participants with direct experience in hospital management during the pandemic and by collecting rich, detailed data. Dependability was supported through the use of a standardized interview guide. Confirmability was ensured by maintaining transparency in the analytical process. Transferability was facilitated by providing a detailed description of the study context and participants.

The study was approved by the Local Ethics Committee (Protocol No. 14 (120), dated October 28, 2021). All participants were informed about the purpose of the study and provided voluntary informed consent prior to participation. Participation was anonymous and confidential.

Participation was voluntary; all respondents provided informed consent prior to the interview. Anonymity and confidentiality of the data were guaranteed. No personal data was collected from participants. All results are presented in aggregate form, without the ability to identify individual respondents.

The study was reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (Application 2).

**Results**

A total of 16 healthcare managers participated in the study, of whom 5 represented senior management, and the remaining were mid-level managers. All participants were employed at multidisciplinary hospitals in Almaty and had substantial professional experience, averaging approximately 14 years. The characteristics of the participants are presented in Table 1.

**Table 1.** Characteristics of participants

| Variable | Category | n (%) / Mean ± SD |
|---|---|---|
| Total participants | | 16 (100) |
| Position level | Senior management (chief physicians, deputies) | 5 (31.3) |
| | Mid-level management (department heads, unit managers) | 11 (68.7) |
| Type of facility | Multidisciplinary hospitals | 16 (100) |
| Location | Almaty | 16 (100) |
| Experience in pandemic management | Direct involvement | 16 (100) |
| Years of experience | Mean ± SD | 14.2 ± 5.8 years |

*Source: compiled by the authors*

The qualitative analysis identified seven interrelated topics reflecting healthcare managers' experiences during the COVID-19 pandemic and their perspectives on hospital system preparedness.

*Topic 1. Hospital overload as a manifestation of systemic unpreparedness*

Participants consistently described the pandemic as a period of critical overload of hospital services, driven by a rapid increase in patient admissions and insufficient system readiness. However, this overload was interpreted not only as a consequence of increased demand but also as a reflection of underlying structural limitations.

Mid-level managers primarily emphasize operational challenges, including workforce shortages and limited bed capacity, whereas senior managers highlighted broader systemic issues such as delayed decision-making and insufficient system flexibility.

«Hospitals were overloaded, there were not enough beds or staff, especially during peak times». (P4, mid-level)

«The problem was not only the flow of patients, but that the system was not ready to adapt quickly» (P14, senior-level)

*Topic 2. Resource constraints with oxygen infrastructure as a critical bottleneck*

All participants reported significant shortages of key resources, particularly during the early stages of the pandemic. These included shortages of medical personnel, hospital beds, personal protective equipment, and critical care capacity. A key cross-cutting finding was the identification of oxygen supply as a critical bottleneck, particularly during peak periods, limiting the ability to manage severe cases.

«At the initial stage, there was a shortage of almost everything - personnel, personal protective equipment, equipment» (P1, mid-level).

«The most critical thing was the lack of oxygen; this really limited treatment options» (P10, mid-level).

Over time, participants noted improvements due to resource mobilization and centralized supply mechanisms, although early shortages were perceived to have significantly affected outcomes.

*Topic 3. Modular COVID-19 hospitals as a system-level adaptive response*

Participants consistently highlighted the role of modular COVID-19 hospitals in Almaty as a key adaptive response to the crisis. These facilities were perceived as a turning point that allowed the system to stabilize. Modular hospitals contributed to expanding bed capacity, ensuring centralized oxygen supply, reducing pressure on multidisciplinary hospitals, and improving working conditions for healthcare staff.

«Modular hospitals were a game changer- they really relieved the system» (P9, mid-level)

«The creation of modular hospitals allowed us to centralize treatment and manage patient flows» (P15, senior-level).

These findings suggest that modular infrastructure functioned as an effective surge capacity mechanism within the hospital system.

*Topic 4. The effectiveness of organizational responses depends on timeliness and coordination*

Participants identified several organizational strategies as effective, including hospital reprofiling, patient routing, centralized management, and rapid deployment of specialized facilities.

At the same time, effectiveness was strongly influenced by the timeliness and coordination of decision-making processes. Delays and poor coordination across healthcare levels were repeatedly cited as limiting factors.

«Reprofiling and routing helped distribute the workload and stabilize operations» (P2, mid-level).

«Initially, decisions were made late, and this impacted the entire system» (P5, mid-level).

«Centralization of management allowed for better control of the situation» (P14, senior-level).

*Topic 5. Workforce Well-Being as a Core Determinant of System Performance*

Workforce well-being emerged as a central determinant of hospital performance during the pandemic. Participants described widespread burnout, physical exhaustion, psychological stress, and a high risk of infection among healthcare workers. Although financial incentives and the provision of personal protective equipment were perceived as important supportive measures, they were considered insufficient without broader systemic support.

«People were working themselves to the bone, and almost everyone was experiencing burnout» (P6, mid-level).

«Financial payments helped, but systemic support, especially psychological support, was insufficient» (P7, mid-level).

«Many employees themselves became ill, which further exacerbated the staffing shortage» (P16, senior-level).

These findings highlight workforce resilience as a critical component of health system performance.

*Topic 6. Preparedness for future pandemics is partial and conditional*

Most participants assessed the current level of preparedness as partial rather than sufficient. While improvements in infrastructure and accumulated experience were acknowledged, several vulnerabilities persist. Key gaps included workforce shortages, limited reserve capacity, insufficient digital infrastructure, and weak integration with primary healthcare.

«The system has become stronger, but it is too early to talk about full readiness». (P10, mid-level)

«Infrastructure has improved, but staffing remains a key issue» (P14, senior-level).

Participants emphasized that preparedness should be understood as a dynamic and multidimensional capacity rather than a fixed state.

*Topic 7. Preparedness as an integrated and adaptive system*

Participants described hospital preparedness as a system composed of interconnected components, including human resources, infrastructure, governance, digital systems, and supply chains. A key insight was that these elements must function as a coordinated, adaptive system rather than as isolated components.

«Without personnel and resources, the system simply cannot function» (P8, mid-level).

«It is important that all elements - management, resources, and personnel - work as a single system» (P15, senior-level).

This systems-based perspective reflects an understanding of preparedness as an integrated model of resilience.

Table 2 presents the key topics and subtopics identified through thematic analysis of the interview data.

**Discussion**

This study provides qualitative insights into the functioning of hospital systems during the COVID-19 pandemic in Almaty, highlighting key structural, organizational, and workforce-related challenges, as well as adaptive strategies that emerged during the crisis.

Consistent with global evidence, hospital overload was a central finding, reflecting both increased demand and underlying system fragility. Previous studies have shown that even well-resourced health systems experienced significant strain during COVID-19 due to limited surge capacity and workforce shortages [7; 14]. This study extends these findings by demonstrating that overload was perceived not only as an operational issue but also as a manifestation of insufficient system flexibility and delayed decision-making.

Resource shortages were widely reported, particularly during the early phase of the pandemic. The identification of oxygen infrastructure as a key bottleneck aligns with international evidence that has highlighted oxygen supply as a major challenge in many countries [4; 16; 15]. Our findings reinforce the importance of considering oxygen systems as a core component of hospital preparedness, rather than a supplementary resource. The delayed availability of oxygen capacity directly impacted clinical outcomes and system performance.

A key contribution of this study is the identification of modular COVID-19 hospitals as an effective adaptive strategy. Similar approaches have been reported worldwide, with temporary or field hospitals rapidly deployed to expand capacity [17-19]. However, in this study, modular hospitals were perceived not only as additional infrastructure but as a systemic solution that simultaneously addressed bed capacity, oxygen supply, and workflow organization. This suggests that modular facilities may represent a scalable model for surge capacity in future health emergencies.

The findings highlight that the effectiveness of organizational responses depends heavily on governance capacity, particularly the ability to coordinate actions across levels and implement decisions rapidly. This aligns with WHO recommendations emphasizing coordinated governance and integrated response mechanisms as critical components of pandemic preparedness [4; 20]. The reported delays and fragmentation suggest that strengthening governance structures should be a priority for health system resilience.

Workforce well-being emerged as a critical determinant of system performance, consistent with existing literature demonstrating high levels of burnout, stress, and infection risk among healthcare workers during the pandemic [6; 7; 21].

**Table 2.** Presents the key topics and subtopics identified through thematic analysis of the interview data.

| Topic | Subtopics |
|---|---|
| 1. Hospital overload and systemic unpreparedness | • Rapid increase in patient admissions<br>• Workforce shortages<br>• Limited bed capacity<br>• Lack of system flexibility<br>• Weak integration with primary care |
| 2. Resource constraints and critical bottlenecks | • Shortage of medical personnel<br>• Insufficient bed capacity<br>• Lack of Personal Protective Equipment<br>• Oxygen supply limitations<br>• Limited critical care resources |
| 3. Modular COVID-19 hospitals as an adaptive strategy | • Expansion of hospital capacity<br>• Centralized oxygen infrastructure<br>• Reduction of pressure on existing hospitals<br>• Improved working conditions<br>• Rapid deployment capability |
| 4. Organizational and management responses | • Hospital reprofiling<br>• Patient routing systems<br>• Centralized governance<br>• Delayed decision-making<br>• Weak coordination across levels |
| 5. Workforce well-being as a determinant of performance | • Burnout and emotional exhaustion<br>• Physical fatigue<br>• Infection risk<br>• Financial incentives<br>• Lack of psychological support |
| 6. Partial preparedness for future pandemics | • Improved infrastructure<br>• Accumulated experience<br>• Persistent workforce shortages<br>• Lack of reserve capacity<br>• Insufficient digital systems |
| 7. Integrated model of hospital preparedness | • Human resource capacity<br>• Infrastructure and equipment<br>• Centralized governance<br>• Digital health systems<br>• Supply chain resilience<br>• System integration |

*Source: compiled by the authors*

Importantly, this study highlights that financial incentives alone are insufficient. Sustainable workforce policies, including psychological support, occupational safety, and retention strategies, are essential for maintaining system functionality during prolonged crises. Participants consistently described preparedness as partial and evolving. This reflects a broader shift in global health literature, where preparedness is conceptualized as a dynamic system capability rather than a static state [8]. The findings suggest that preparedness requires integration across infrastructure, workforce, governance, and digital systems, reinforcing the concept of health system resilience as the ability to adapt, absorb, and respond to shocks.

*Strengths and Limitations.* This study has several strengths. First, it provides in-depth qualitative insights from healthcare managers directly involved in the pandemic response, allowing for a nuanced understanding of system-level challenges and adaptations. Second, the inclusion of both mid-level and senior managers enabled the identification of differences between operational and strategic perspectives. Third, the study captures context-

specific experiences, including the role of modular hospitals, thereby adding practical relevance and contributing to global evidence on adaptive health system responses.

Several limitations should be considered. First, the study was conducted in a single city, which may limit the generalizability of the findings to other settings. Second, participants were recruited through professional WhatsApp groups, which may introduce selection bias, as more engaged or accessible managers were more likely to participate. Finally, the qualitative design does not allow for quantitative assessment of the magnitude of identified challenges, although it provides valuable depth and contextual understanding.

**Conclusion**

This study demonstrates that hospital system performance during the COVID-19 pandemic was shaped by the interplay of resource availability, governance capacity, and workforce resilience, underscoring that an effective pandemic response requires not only emergency measures but also systemic preparedness grounded in integrated, adaptive models of care. The findings suggest several key policy implications: strengthening surge capacity through scalable infrastructure solutions such as modular hospitals; prioritizing investment in oxygen and critical care infrastructure; developing sustainable workforce strategies that include psychological support, occupational safety, and long-term retention; enhancing governance through clear decision-making frameworks and centralized coordination; improving integration between primary care and hospital services to optimize patient flows; and advancing digital health systems to enable real-time data-driven decision-making. Overall, these results support a transition toward resilient, integrated, and adaptive health systems capable of responding effectively to future public health emergencies.

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***Application 1***

To evaluate the effectiveness of implemented measures to optimize hospital operations based on a qualitative study involving healthcare administrators, managers, and healthcare workers.

**Dear respondent!**

You are invited to participate in a study dedicated to improving the provision of inpatient medical care during pandemics.

The purpose of the study is to assess the preparedness of the inpatient medical care system for future pandemics and identify areas for improvement, while accounting for identified challenges (workload, resource shortages, staff well-being, and organizational factors). Guarantees:

- Participation is voluntary
- All responses are anonymous
- The data obtained will be used for scientific purposes only
- Results will be presented in summary form without providing personal information

Interview Time: 20–30 minutes

Please confirm your consent to participate:

☐ Yes, I agree

☐ No, I disagree

→ Respondent Information

(to be completed by the interviewer)

- Job Title: _____
- Organization: _____
- Length of Service: _____

→ Analytical Preamble (to be announced before the questions)

Previous stages of the study showed that during the COVID-19 pandemic, the inpatient healthcare system operated under significant strain, with shortages of human and material resources and a high workload for medical personnel. A statistically significant deterioration in the professional well-being of healthcare workers was observed ($p<0.001$), and hospital performance was significantly dependent on resource availability and organizational support.

Furthermore, a significant economic burden of hospitalizations was identified, peaking in 2021, reflecting the system's peak load.

In this regard, we ask you to answer the following questions.

MAIN PART OF THE INTERVIEW

Part 1. Experience and Systemic Challenges

1. How do you assess the main challenges identified in hospital operations during the COVID-19 pandemic?

2. What factors, in your opinion, had the greatest impact on hospital overload?

Part 2. Resource Availability

3. How sufficient were staffing, bed capacity, and material and technical resources (PPE, equipment)?

4. Which resources were most in short supply during the period of greatest demand?

Unit 3. Organization and Management

5. Which organizational solutions (repurposing, routing, flow management) proved most effective?

6. Which management decisions proved ineffective or required improvement?

Unit 4. Medical Personnel

7. What were the most significant issues affecting the professional well-being of medical workers?

8. Which staff support measures proved most effective?

Unit 5. Effectiveness Factors

9. In your opinion, what key factors determine the effectiveness of a hospital during a pandemic?

Unit 6. Preparedness for Future Pandemics

10. How prepared is the hospital care system for future pandemics? What weaknesses would you highlight?

11. What measures need to be implemented to improve hospital preparedness and resilience?

12. What key components should be included in a hospital pandemic preparedness system?

13. How, in your opinion, should these components interact to ensure the effective operation of the system?

**Conclusion**

Thank you for participating in the study!

Your opinion is an important contribution to improving the healthcare system

***Application* 2**

COREQ checklist (Consolidated Criteria for Reporting Qualitative Research)

| Domain | Item No. | Item | Description | Reported in manuscript |
|---|---|---|---|---|
| **Research team and reflexivity** | 1 | Interviewer/facilitator | Who conducted the interviews | Methods – Data collection |
| | 2 | Credentials | Researcher qualifications | Methods – Data collection |
| | 3 | Occupation | Role of the researcher | Methods – Data collection |
| | 4 | Gender | Interviewer gender | Methods – Data collection |
| | 5 | Experience/training | Qualitative training | Methods – Data collection |
| | 6 | Relationship established | Prior relationship with participants | Methods – Data collection |
| | 7 | Participant knowledge | Awareness of the study/ interviewer | Methods – Data collection |
| | 8 | Reflexivity | Researcher bias/positioning | Methods – Data collection |
| **Study design** | 9 | Methodological orientation | Theoretical framework | Methods – Data analysis |
| | 10 | Sampling | Sampling strategy | Methods – Study setting |
| | 11 | Method of approach | Recruitment method | Methods – Study setting |
| | 12 | Sample size | Number of participants | Methods |
| | 13 | Non-participation | Refusals/dropouts | Methods – Study setting |
| | 14 | Setting | Location of data collection | Methods – Data collection |
| | 15 | Presence of others | Others present during interviews | Methods – Data collection |
| | 16 | Description of sample | Participant characteristics | Results / Table 1 |
| | 17 | Interview guide | Use of the interview guide | Methods / Supplementary 1 |
| | 18 | Repeat interviews | Conducted or not | Methods – Data collection |
| | 19 | Audio recording | Recording method | Methods – Data collection |
| | 20 | Field notes | Use of field notes | Methods – Data collection |
| | 21 | Duration | Interview duration | Methods – Data collection |
| | 22 | Data saturation | Saturation described | Methods – Study setting |
| | 23 | Transcripts returned | Member checking | Methods – Data analysis |
| **Data analysis and findings** | 24 | Number of coders | Multiple coders | Methods – Data analysis |
| | 25 | Coding tree | Description of coding structure | Methods – Data analysis |
| | 26 | Derivation of topics | Inductive/deductive approach | Methods – Data analysis |
| | 27 | Software | Software/manual coding | Methods – Data analysis |
| | 28 | Participant checking | Validation of findings | Methods – Data analysis |
| | 29 | Quotations presented | Use of participant quotes | Results |
| | 30 | Data–findings consistency | Alignment between data and results | Results |
| | 31 | Clarity of major topics | Clear presentation of topics | Results |
| | 32 | Clarity of minor topics | Description of variations | Results |

# COVID-19 ПАНДЕМИЯСЫНАН АЛЫНҒАН САБАҚТАР: АЛМАТЫ ҚАЛАСЫНДАҒЫ СТАЦИОНАРЛАРДЫҢ БАСҚАРУЫ МЕН ДАЙЫНДЫҚ ДЕҢГЕЙІН САПАЛЫҚ ЗЕРТТЕУ

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**Аңдатпа**

*Өзектілігі:* COVID-19 пандемиясы аурухана жүйелеріне бұрын-соңды болмаған жүктеме түсіріп, ресурстармен қамтамасыз ету, басқару және кадрлық әлеует салаларындағы құрылымдық әлсіз тұстарды айқындады. Қазақстанда, атап айтқанда Алматы қаласында, модульдік инфекциялық стационарларды құруды қоса алғанда, ауқымды ұйымдастырушылық өзгерістер жүзеге асырылды. Алайда олардың тиімділігі мен болашақ дағдарыстарға дайындық деңгейі туралы денсаулық сақтау басшыларының көзқарастарын сипаттайтын сапалық деректер жеткіліксіз.

*Мақсаты:* Алматы қаласындағы COVID-19 пандемиясы кезеңінде стационарлардың қызмет етуіне қатысты денсаулық сақтау басшыларының тәжірибесін зерттеу, енгізілген шаралардың тиімділігін бағалау және болашақ пандемияларға дайындық пен жүйенің орнықтылығына әсер ететін негізгі факторларды анықтау.

*Әдістері:* Жартылай құрылымдалған тереңдетілген сұхбаттарды қолдана отырып сапалық зерттеу жүргізілді. Зерттеуге Алматы қаласының көпсалалы стационарларынан 16 басқарушы (5 – жоғары деңгейдегі, 11 – орта буын) мақсатты іріктеу әдісі арқылы кәсіби WhatsApp топтары негізінде тартылды. Деректер 2026 жылдың бірінші тоқсанында 15–20 минуттық онлайн сұхбаттар арқылы жиналды. Сұхбаттар аудиожазбаға түсіріліп, толық мәтінге көшірілді және индуктивті тақырыптық талдау әдісімен өңделді.

*Нәтижелері:* Жеті өзара байланысты тақырып анықталды: (1) стационарлардың шамадан тыс жүктелуі – жүйелік дайындықтың жеткіліксіздігінің көрінісі; (2) ресурстар тапшылығы, оның ішінде оттегі инфрақұрылымы негізгі шектеуші фактор ретінде; (3) модульдік COVID-стационарлар негізгі бейімделу стратегиясы ретінде; (4) уақтылы және үйлестірілген басқарушылық шешімдердің маңыздылығы; (5) медициналық персоналдың әл-ауқаты жүйе тиімділігінің негізгі анықтаушысы ретінде; (6) болашақ пандемияларға ішінара дайындық; (7) біріктірілген және бейімделгіш дайындық жүйесінің қажеттілігі. Модульдік стационарлар пандемияға жауап берудегі бетбұрыс кезең ретінде бағаланып, қуаттылықты арттыруға және жүйе ішіндегі үйлестіруді жақсартуға ықпал етті. Соған қарамастан, кадр тапшылығы, басқару және цифрлық инфрақұрылымға қатысты мәселелер сақталуда.

*Қорытынды:* COVID-19 пандемиясы кезеңінде стационар жүйесінің тиімділігі ресурстар, басқару тетіктері және кадрлық тұрақтылықтың өзара ықпалымен айқындалды. Зерттеу нәтижелері болашақ қоғамдық денсаулық сақтау төтенше жағдайларына дайындықты қамтамасыз ету үшін ауқымды инфрақұрылымды дамыту, кадрлық саясатты нығайту, басқаруды жетілдіру және цифрлық шешімдерді дамытуға бағытталған интеграцияланған әрі бейімделгіш тәсілдердің қажеттілігін көрсетеді.

***Түйін сөздер:*** *COVID-19, стационарларды басқару, денсаулық сақтау жүйесінің орнықтылығы, пандемияға дайындық, сапалық зерттеу, Қазақстан.*

# УРОКИ ПАНДЕМИИ COVID-19: КАЧЕСТВЕННОЕ ИССЛЕДОВАНИЕ УПРАВЛЕНИЯ И ГОТОВНОСТИ СТАЦИОНАРОВ В Г. АЛМАТЫ

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**Аннотация**

*Актуальность.* Пандемия COVID-19 оказала беспрецедентную нагрузку на больничные системы, выявив структурные уязвимости в ресурсном обеспечении, управлении и кадровом потенциале. В Казахстане, в частности в г. Алматы, были реализованы масштабные организационные изменения, включая создание модульных инфекционных стационаров; однако качественные данные о восприятии руководителей здравоохранения относительно их эффективности и готовности к будущим кризисам остаются ограниченными.

*Цель:* изучить опыт руководителей здравоохранения по функционированию стационаров в период пандемии COVID-19 в г. Алматы, оценить воспринимаемую эффективность реализованных мер и определить ключевые факторы, влияющие на готовность и устойчивость системы к будущим пандемиям.

*Методы:* Проведено качественное исследование с использованием полуструктурированных глубинных интервью. В исследование включены 16 руководителей медицинских организаций (5 - высшего уровня и 11 - среднего уровня) многопрофильных стационаров г. Алматы, отобранных методом целенаправленной выборки через профессиональные группы в WhatsApp. Сбор данных осуществлялся в первом квартале 2026 года посредством онлайн-интервью продолжительностью 15–20 минут. Аудиозаписи интервью были дословно транскрибированы и проанализированы с использованием индуктивного тематического анализа.

*Результаты:* Выделено семь взаимосвязанных тем: (1) перегрузка стационаров как проявление системной неподготовленности; (2) дефицит ресурсов, при этом инфраструктура кислородного обеспечения выступала критическим ограничивающим фактором; (3) модульные COVID-стационары как ключевая адаптационная стратегия; (4) значимость своевременных и скоординированных управленческих решений; (5) благополучие медицинского персонала как ключевой фактор функционирования системы; (6) частичная готовность к будущим пандемиям; (7) необходимость формирования интегрированной и адаптивной системы готовности. Модульные стационары рассматривались как переломный момент в ответе на пандемию, способствовав увеличению мощности и улучшению координации системы. Несмотря на достигнутые улучшения, сохраняются проблемы, связанные с дефицитом кадров, управлением и цифровой инфраструктурой.

*Выводы.* Эффективность функционирования стационарной системы в период пандемии COVID-19 определялась взаимодействием ресурсов, управленческих механизмов и устойчивости кадрового потенциала. Полученные результаты подчеркивают необходимость внедрения интегрированных и адаптивных подходов в системе здравоохранения, включая масштабируемую инфраструктуру, укрепление кадровой политики, совершенствование управления и развитие цифровых решений для обеспечения готовности к будущим чрезвычайным ситуациям в области общественного здравоохранения.

***Ключевые слова:*** *COVID-19, управление стационаром, устойчивость системы здравоохранения, готовность к пандемиям, качественное исследование, Казахстан.*

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