


<https://doi.org/10.21272/hem.2021.3-08>

JEL Classification: I10, H51

Arnav Mahurkar,  
MSc., Erasmus University Rotterdam, Netherlands  
 ORCID ID, 0000-0002-7166-3325  
email: arnavmahurkar@gmail.com

## DISTRIBUTIVE POLITICS OF MEDICAL COMMODITIES: AN OVERVIEW OF TRANSACTION COSTS AND STATE-CENTER RELATIONS DURING INDIA'S SECOND WAVE

**Abstract.** *Using a transaction costs approach, this paper attempts to understand the allocation of medical oxygen during India's second wave. In this background, it argues for transparency in allocative decision making of health related commodities. Through process tracing methodology, it focuses on the case of the oxygen crisis in Delhi at a time when different governments within India's federal set-up accused each other of mismanagement of this commodity. The sequence of events in the case are traced to understand the grounds of allocative decisions during this emergency. Understanding the issue of allocation of medical resources becomes important as matters of life and death are often politicized. In this case, it appears that certain questionable decisions were made by both the Central government and the state government at the peak of the country's second wave. However, the lack of availability of good quality data even hindered the judicial committee from reaching a conclusive opinion. As a result, this paper recommends the usage of Information Communication Technology tools for sharing health related information in real time. With ICT tools, the costs of exchanges made between Central and State governments could be lowered, which could in turn result in fairer or more optimal decisions. This paper argues that within India's federal structure, if information costs are too high, factors other than efficiency and fairness can affect allocation of resources. It concludes by recommending the creation of centralized health supply data exchange can help increase allocative efficiencies. This study uses a process tracing method to answer its research question. Process tracing refers to an in-depth empirical analysis of causal processes in a real case. Through a standardized process of data acquisition and transmission with ICT tools, transaction costs made in exchanges between central and state governments could be lowered. By automating collection and transmission processes through tamper-proof devices, the integrity of the local level data will be maintained, and transaction costs will be lowered further. As a consequence, economic efficiency and fairness would underpin the allocation of the critical medical commodity.*

**Keywords:** allocative decisions, federalism, health policy, ICT, crisis management, decision making, pandemic.

**Introduction.** For patients suffering from moderate to severe forms of COVID, medical oxygen can be of life saving importance. During the current pandemic, unanticipated waves of the virus left many countries scrambling for this essential commodity. In India, the impact of the scarcity of medical oxygen was realized during the first wave in September. However, this issue reached a much larger scale at the time of the second wave. One after another, major hospitals declared that their stock of the single most important intervention for Covid patients had depleted. Some estimates suggest that over 500 lives were lost as a result of the shortage of medical oxygen.

In a situation of intense panic, the issue of scarcity of oxygen dominated news reports. At the same time, questions were asked regarding the existing allocation mechanisms for medical oxygen. On the one hand, the central government capped the oxygen quota for the city and its neighboring states imposed an embargo on medical oxygen supply to Delhi to prioritize their own needs, despite constant media coverage of the critical shortage of the essential commodity in the capital city. On the other hand, the Delhi government refused to allow an independent audit of its oxygen requirements (Thadhani, 2021). In this political tussle, it was unclear whether every state was getting the optimal amount of medical oxygen from the available pool. Despite the intervention of the judiciary, questions are still abound regarding the

---

**Cite as:** Arnav, M. (2021). Distributive Politics of Medical Commodities: An Overview of Transaction Costs and State-Center Relations During India's Second Wave. *Health Economics and Management Review*, 3, 89-96. <http://doi.org/10.21272/hem.2021.3-08>



incident. Undoubtedly, the medical oxygen crisis marks the need for greater understanding of allocative mechanisms in state-state and center-state relations.

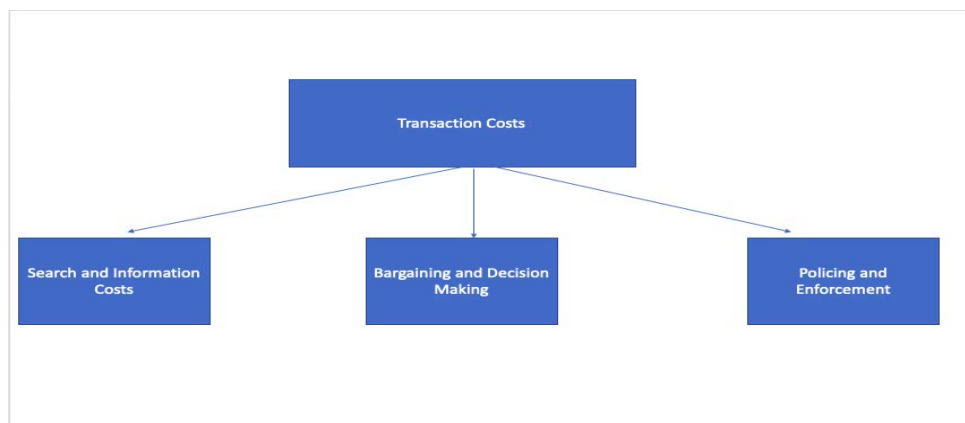
In this context, this paper attempts to understand the importance of resource allocation questions through a transaction costs approach. It argues that within India's federal structure, if information costs are too high, factors other than efficiency and fairness can affect allocation of resources. It concludes by recommending the creation of centralized health supply data exchange can help increase allocative efficiencies.

This paper first begins by describing Transaction costs in the context of the economics of federalism. Then, it attempts to understand the impact of Information Communication Technology on lowering transaction costs, specifically in the healthcare setting. Moving on, it looks at the issue of transaction costs in the pandemic's oxygen crisis within the framework of Indian federalism, and makes the recommendation of information sharing for making fairer allocative decisions.

**Literature Review.** North D. (1990) defines transaction costs in terms of the costs incurred on information for activities related to making an exchange.

«The costliness of information is the key to the costs of transacting, which consist of the costs of measuring the valuable attributes of what is being exchanged and the costs of protecting rights and policing and enforcing agreements».

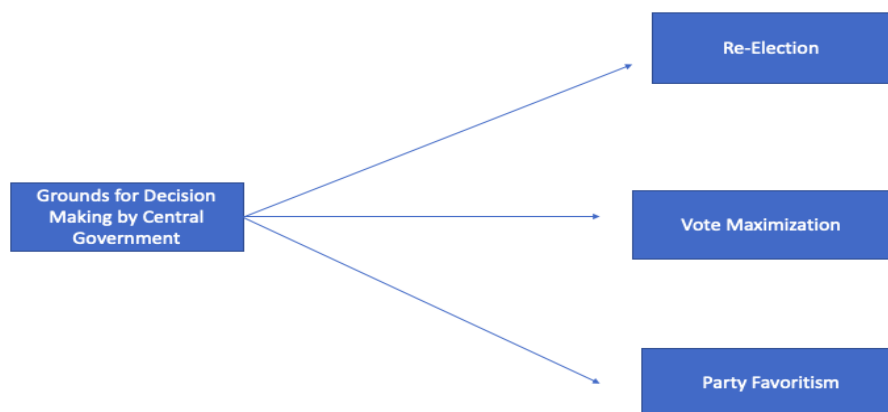
In North's definition, information costs become critical for the activities of searching for parties with whom you want to engage, reaching an agreement with that party, and monitoring the agreement (Almohf, 2019). Coase's original conception of transaction costs applied to difficulties in reaching agreements within a firm, and making voluntary exchanges in the market. Extending Coase's definition beyond the firm and the market setting, Williamson and North applied transaction costs to broader social and political situations such as gift related exchanges and coalition formations in politics (North, 1990). An increase in transaction costs leads to inefficiencies in allocative outcomes outside the market too. If the cost of information is too high, false promises could be made ex ante or promises could be violated ex-post.



**Figure 1. Components of Transaction Costs**

Sources: developed by the authors on the basis of (Almohf, 2019).

Hedge et al. (1991) argues that transaction costs apply in the federal environment as well. High transaction costs could lead to the central governments basing their subnational allocative decisions on factors other than stated objectives of economic efficiency or fairness. These objectives could include re-election, vote maximization and party favoritism (Oates, 1999). This assumes representatives' defections from their electoral promises.



**Figure 2. Grounds for Decision Making in a high transaction costs setting**  
Sources: developed by the authors on the basis of (Oates, 1999).

However, with the existence of constitutional checks and balances, information availability and knowledge sharing mechanisms, such political transaction costs are potentially steered down (Berggren and Karlson, 2003). State representatives in national legislatures also help lower the existing transaction costs in allocative decisions by bringing in local information (Feiock, 2012). Yet, these constitution based mechanisms might not be sufficient to settle the high transaction costs in allocative decisions in federal setups.

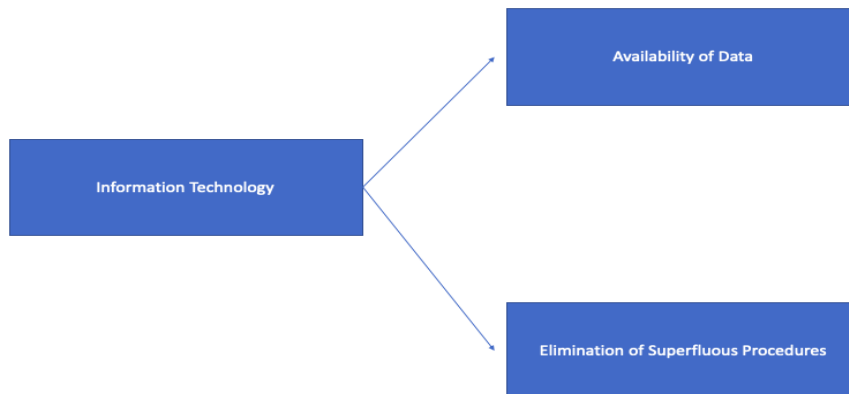
Information Communication Technology and Transaction Costs. In an isolated sense, appropriate forms of data acquisition, processing and transmission have the potential to reduce transaction costs (Nootboom, 1992). Examples of the impact of ICTs on transaction costs can be found in the insurance market. With the usage of information systems for data acquisition, the reimbursement and registration time for claims is successfully shortened. As the data on insurance companies' turnaround time for processing claims becomes public, the buyers in the market have the relevant information for comparing different insurers. Conversely, insurance companies benefit as their public outreach grows, and it becomes easier for them to collect relevant information. With the simplification and accessibility of information, parties to the exchange are able to make better choices, and maintain and enforce contracts.

In a public policy setting, the development of e-governments is seen to lower transaction costs (Kachwamba, 2011). Because of the elimination of information gaps and superfluous procedures, obtaining government services becomes easier for the public. Additionally, officials who have an incentive to defect from their responsibilities to engage in corrupt practices are deterred as information on their actions is made accessible, and their work is monitored.

In healthcare, information systems have been traditionally used for disease surveillance activities. The earliest noted usage of these systems for medical geography and epidemiology dates back to the Cholera epidemic of 1854 (Tulchinsky, 2018). Through a rigorous cataloging of the Cholera outbreak in the Soho district of London, Dr. John Snow was able to make critical associations, and even predict the changes in key variables of the disease.

In recent years, the United States' federal government has developed extensive health data collection mechanisms to make funding decisions for programs operating at the state level (Magnuson, 2020). In a

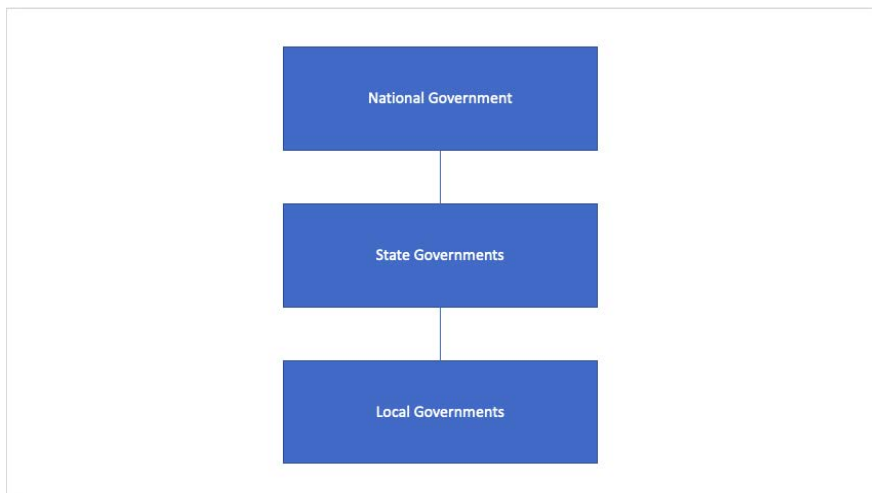
sense, these evidence based mechanisms ensure transparency in allocative decisions for healthcare programs.



**Figure 3. Impact of Information Technology on Governance.**

Sources: developed by the authors on the basis of (Kachwamba, 2011).

Federal Structure in India. India's federal structure is characterized by its «strong center» (Seervai, 2005). Under the constitution's seventh schedule, the central government has wider legislative powers in comparison to the state.



**Figure 4. India's Federal Structure**

Sources: developed by the authors.

India's federal structure in terms of legislative powers. Together with its superlative law-making powers, the center also coordinates the implementation of national level programs with the states, and plays a critical role in resolving inter-state disputes in case the disputes are not taken to the Supreme Court.

The advantages of a strong center can be understood through the Coasian terms of «Vertical integration» (Berggren and Karlson, 2005). In the context of the firm, difficulties in attaining intra-firm agreements are settled by the rules of the centralized management. Similarly, roadblocks in inter-state negotiations are overcome by a strong center.

However, India's asymmetric federalism extends beyond its strong center. Along with the constitutionally recognised population differences, external factors such as economic contribution and spatial proximity to the media and to key decision making organizations lead to disproportionate influence for certain states in terms of agenda setting.

The nature of Indian federalism is also complicated by the presence of political parties operating at both national and local levels. With a stake in both national and regional politics, political favoritism further endangers fairness in allocative decisions. In lieu of the rise of India's multiparty system, regional parties have accused central governments of making biased allocative decisions. Similar allegations were levied against the central government during the medical oxygen crisis too.

**Methodology and research methods.** This study uses a process tracing method to answer its research question. Process tracing refers to an in-depth empirical analysis of causal processes in a real case. The methodology allows the researcher to 'link' causes and outcomes within the case (Beach and Pedersen, 2019).

For investigating the sequence of events, and the associated changes over time, the study relies on evidence present in research reports, legislative reports and news articles.

**Results.** The Case: Shortage of Medical Oxygen in the Second Wave.

«At 9:45 p.m., alarms [blared in the hospital]...Over two dozen patients on ventilators couldn't breathe... there were cries for help, choking sounds coming from their throats as if they were being strangled» (Gettleman, 2021).

At the peak of the second wave, the country witnessed tragic scenes of overcrowded hospitals struggling to manage its patients. The incident highlights the misery of the patients in the Intensive Care Unit of New Delhi's Jaipur Memorial Hospital. However, similar scenes were being reported from hospitals all over the capital city.

**Center's Quota.** As cases spiked, so did the oxygen requirement. From a requirement of 178-220 metric tonnes (MT) of Oxygen, the capital city listed a requirement of 325 MTs of oxygen on the 14th April (Sharma et al, 2005). In the subsequent days, the requirement grew to 510 MTs. By 1st May, 700 MTs of medical oxygen were required in the city. The state government Desperate appeals were made to the Center to supply more medical oxygen to Delhi. However, the quota of medical oxygen allocation for the city was capped by the center much below the state government's stated requirement.

**Blocking of Oxygen Supply by Haryana.** With cases rising and medical oxygen stock depleting, hospitals made desperate appeals for medical oxygen. However, in the midst of this crisis, the neighboring state of Haryana stopped all of its oxygen supply to neighboring states. In the border city of Faridabad, an oxygen plant was sealed, and a truck carrying oxygen into Delhi was temporarily seized (The Print, 2021).

As the situation became serious, these problems in medical oxygen allocation and supply became the subject of an intense political blame-game. On the one hand, Delhi's ruling Aam Aadmi Party[AAP] blamed the BJP for 'willfully' obstructing oxygen supply (India Today, 2021). On the other hand, the BJP, ruling at both the center and in the state of Haryana, accused the AAP government of mismanagement.

**Judicial Involvement.** Hearing the appeal of the counsel of Jaipur Memorial and other hospitals, the Delhi High Court stated that it would 'Hang Anyone' who obstructs the supply of oxygen into the capital (The Economic Times, 2021). Going further, the Court asked the central government for an immediate update on the oxygen status.

### Medical Oxygen Requirements in Delhi

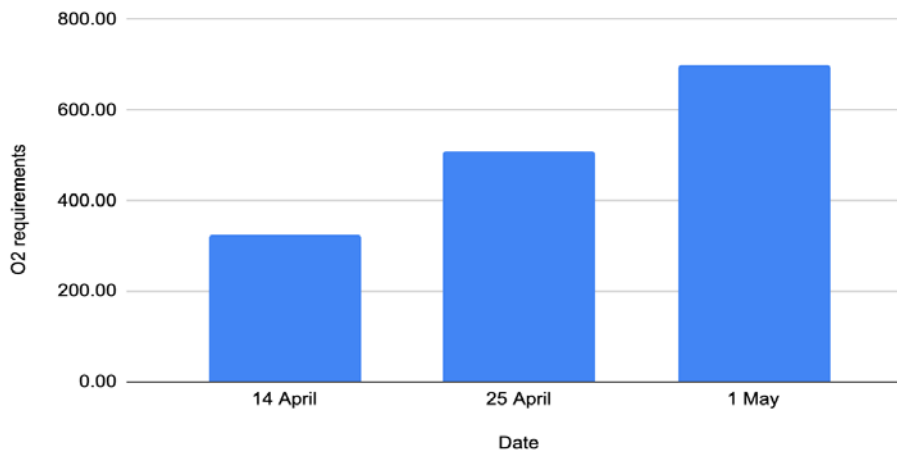


Figure 5. Medical Oxygen Requirements in Delhi

Sources: developed by the authors.

By early May, the issue had reached the Supreme Court. In its observations, the Court stated that it would set up a task force that would ensure transparency in the allocation of medical oxygen, and would audit the medical oxygen requirements.

**Task Force.** In the same month, a task force comprising doctors and government officials was established. However, the opinion of this task force was strongly divided. Although the published report concluded that the Delhi government overstated its oxygen requirements, two members expressed their strong dissent to the findings, and even skipped meetings (Barman, 2021). Moreover, strong questions were raised regarding the methodology of the audit with relation to medical oxygen requirements in non Intensive Care beds. Consequently, public opinion on this oxygen crisis was still split.

**Conclusions.** Transaction Costs in the Delhi Oxygen Crisis. A recap of the series of the incidents raises important questions regarding allocative and supply decisions in a federal setting. In a life and death situation for many, was medical oxygen allocation by the central government optimal or fair? Was Delhi's getting undue attention at a time when the entire country required medical oxygen? Were political differences impacting the allocative decisions?

These questions have implications in terms of false promises and/or renegeing of promises in the exchange made by political representatives within the federal setup. As mentioned above, the Indian constitution creates important mechanisms to lower transaction costs in center-state exchanges. Besides the checks and balances maintained on the executives, and the election of candidates from local constituencies, it sets the standard for the finance commissions to make evidence-based transfers to subnational governments based on their needs. Moreover, an active judiciary ensures that critical allocative decisions are under a strict scrutiny. Despite these mechanisms, however, the ambiguities in information allow greater discretionary powers to both state and center governments. In such situations, the defection of elected representatives from the stated duties to serve the public is also a possible scenario.

For mitigating the risk of these eventualities, this supports the recommendation of the Supreme Court underlining the need for the establishment of Hospital Oxygen Committees for micro level surveillance.

Through a standardized process of data acquisition and transmission with ICT tools, transaction costs made in exchanges between central and state governments could be lowered. By automating collection and transmission processes through tamper-proof devices, the integrity of the local level data will be maintained, and transaction costs will be lowered further. As a consequence, economic efficiency and fairness would underpin the allocation of the critical medical commodity.

**Funding:** This research did not receive any funding.

## Reference

- Almlöf, H., & Bjuggren, P. O. (2019). A regulation and transaction cost perspective on the design of corporate law. *European Journal of Law and Economics*, 47(3), 407-433. [[Google Scholar](#)] [[CrossRef](#)]
- Barman, S. R. (2021). Delhi Oxygen Audit Splits Supreme Court Panel, Triggers Firestorm by Questioning Peak Demand. *The Indian Express*. Retrieved from [[Link](#)]
- Beach, D., & Pedersen, R. B. (2019). *Process-tracing methods: Foundations and guidelines*. University of Michigan Press. [[Google Scholar](#)]
- Berggren, N., & Karlson, N. (2003). Constitutionalism, division of power and transaction costs. *Public Choice*, 117(1), 99-124. [[Google Scholar](#)] [[CrossRef](#)]
- Feiock, R. C. (2001). A transaction cost theory of federalism. In *meeting of the Southern Political Science Association, Atlanta GA* (pp. 132-145). [[Google Scholar](#)]
- Gettleman, J. (2021). The Night the Oxygen Ran Out. *The New York Times*. Retrieved from [[Link](#)]
- Hedge, D. M., Sgicchitano, M. J., & Metz, P. (1991). The principal-agent model and regulatory federalism. *Western Political Quarterly*, 44(4), 1055-1080. [[Google Scholar](#)] [[CrossRef](#)].
- India Today. (2021). AAP, BJP Spar over Oxygen Shortage in Delhi's Hospitals. Retrieved from [[Link](#)]
- Kachwamba, M. (2011). Impact of E-Government on Transaction Cost and FDI Inflows: A Proposed Conceptual Framework. *International Journal of Business and Management*, 6(11). [[Google Scholar](#)] [[CrossRef](#)].
- Magnuson, J. A., & Dixon, B. E. (Eds.). (2020). *Public health informatics and information systems*. Springer Nature. [[Google Scholar](#)]
- Nooteboom, B. (1992). Information technology, transaction costs and the decision to 'make or buy'. *Technology Analysis & Strategic Management*, 4(4), 339-350. [[Google Scholar](#)] [[CrossRef](#)]
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press. [[Link](#)]
- Oates, W. E. (1999). An essay on fiscal federalism. *Journal of economic literature*, 37(3), 1120-1149. [[Google Scholar](#)] [[CrossRef](#)]
- Seervai, H. M. (1968). *Constitutional law of India* (Vol. 1, pp. 10-99). Tripathi.
- Sharma, S., Pradhan, K., Satya, S., & Vasudevan, P. (2005). Potentiality of earthworms for waste management and in other uses – a review. *The J. Am. Sci.*, 1 (1), 4-16. [[Link](#)]
- Thadhani, A. (2021). Preventing A Repeat Of The COVID-19 Second-Wave Oxygen Crisis In India ORF. *ORF*. Retrieved from [[Link](#)]
- The Economic Times. (2021). Will Hang Anyone Blocking Oxygen Supply: Delhi High Court. Retrieved from [[Link](#)]
- The Print. (2021). Delhi Hospitals Gasp As Haryana Refuses To Share Oxygen, Then Centre Steps In To Resolve Row. Retrieved from [[Link](#)]
- Tulchinsky, T. H. (2018). John Snow, Cholera, the Broad Street Pump: Waterborne Diseases Then and Now. *Case Studies in Public Health*, 77-99. [[Google Scholar](#)] [[CrossRef](#)]
- Vohra, A. (2021). Media AAPKe Hain Kaun? *Newslandry*. Retrieved from [[Link](#)].
- Williamson, O. (1988). The Logic of Economic Organization. *Journal of Law, Economics, and Organization*, 4(1), 65-93. [[Google Scholar](#)]
- Williamson, O. E. (1999). Public and private bureaucracies: a transaction cost economics perspectives. *The Journal of Law, Economics, and Organization*, 15(1), 306-342. [[Google Scholar](#)] [[CrossRef](#)]

**Арнав Махуркар, MSc., Університет Еразма в Роттердамі, Нідерланди**  
**Система розподілу медичних товарів: аналіз транзакційних витрат та державних відносин під час другої хвилі пандемії COVID-19 в Індії**

Використовуючи підхід, що базується на транзакційних витратах, автор досліджує сферу розподілу медичного кисню під час другої хвилі пандемії COVID-19 в Індії. Обґрунтовано важливість прозорості в ухваленні рішень щодо

розподілу товарів, пов'язаних зі здоров'ям. За допомогою методології відстеження процесів зосереджено увагу на випадку кисневої кризи у м. Делі в той час, коли різні уряди в межах федеральної системи Індії звинувачували один одного в поганому управлінні процесами в системі охорони здоров'я. Розуміння питання розподілу медичних ресурсів стає важливим, оскільки питання збереження життя та випадків смерті часто політизуються. У цьому випадку виявляється, що певні сумнівні рішення були прийняті як центральним урядом, так і урядом штату на піку другої хвилі пандемії в країні. Однак відсутність якісних даних перешкоджає судовому комітету дійти остаточного висновку. Автором рекомендовано використовувати інструменти інформаційно-комунікаційних технологій (ІКТ) для обміну інформацією, пов'язаною зі здоров'ям, у режимі реального часу. За допомогою інструментів ІКТ можливо знизити витрати часу на обмін інформацією між центральним урядом і урядами штатів, що, у свою чергу, дасть можливість ухвалювати оптимальні ефективні рішення. У рамках федеральної структури Індії, якщо витрати на інформацію занадто високі, на розподіл ресурсів можуть впливати інші фактори, крім ефективності та справедливості. Рекомендується створення централізованого обміну даними щодо медичних послуг, що може допомогти підвищити ефективність розподілу. Основний метод дослідження – відстеження процесу відноситься до глибокого емпіричного аналізу причинно-наслідкових процесів у реальному часі. Завдяки стандартизованому процесу збору та передачі даних за допомогою інструментів ІКТ, транзакційні витрати, які здійснюються в обміні між центральними урядами та урядами штатів, можуть бути знижені. Автоматизуючи процеси збору та передачі за допомогою пристроїв із захистом від несанкціонованого доступу, цілісність даних локального рівня буде підтримуватися, а транзакційні витрати будуть знижені ще більше. Як наслідок, економічна ефективність і справедливість будуть лежати в основі розподілу критичного медичного товару.

**Ключові слова:** рішення в системі розподілу, федералізм, політика в сфері охорони здоров'я, інформаційно-комунікаційні технології (ІКТ), антикризовий менеджмент, ухвалення рішень, пандемія.