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Major Public Health Emergencies in Medical Supplies Scheduling

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Abstract

Early on in the COVID-19 pandemic in Wuhan, there was an unfair distribution of patients among hospitals and a delay in the delivery of medical supplies, which lowered the survival rate of infected people. This research suggests a strategy for allocating medical supplies per vehicle to each hospital and the supply sequence per vehicle to each hospital in order to build a quick and precise supply scheme for medical materials in significant public health emergencies. The following two sub-problems are specifically solved in this paper: calculating the medical supplies that may be transported in each vehicle to each hospital; and calculating the shortest transportation times and matching routes from any distribution facility to any hospital. It is carried out the strategy for resolving sub-problem by a series of iterations, each of which determines the quickest path from a distribution hub, via one or more hospitals, and back to the hub. This research suggests a distribution strategy for medical supplies in significant public health emergencies, in accordance with the sub problem. To address this problem, a multiple dynamic programming approach that combines a few distinct dynamic programming procedures is suggested.

Keywords: Major Public Health Emergencies; Medical Supplies; Transportation Scheduling; Covid-19 Pandemic

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Introduction

Our algorithm also recognises the need for quick scheme updates when the number of cars is fluctuating [1]. While the second sub-problem should be resolved based on the assumption that the relevant data will be available following the occurrence of a significant public health emergency, the first sub-problem can be resolved in normal circumstances [2]. The entire procedure suggested in the case study section is this study is used to schedule medical supplies during the early stages of the COVID-19 outbreak in Wuhan, demonstrating the method's viability [3]. The key innovation of the methodology suggested in this study is that problems can be solved optimally while the time complexity is kept within reasonable bounds [4]. COVID-19 was found in Wuhan, China, and it spread fast over the world [5]. During the early stages of the pandemic, there was a shortage of medical supplies, hospital beds, and medical personnel, which led to overcrowding in the hospitals and major patient cross-infection [6]. Only institutions were chosen by the government to handle the infected cases in order to enhance the effectiveness of the exceedingly scarce medical supplies [7]. Within a few weeks, medical supplies from all across the nation and even the world began to arrive, and by March 2020, there were more than authorised hospitals [8]. The medical supplies were gathered in the distribution hubs, like the railway station and airport in Wuhan, and then were the preparation addition, timing, and transportation of emergency supplies is the key areas of recent research [9]. These studies aim to improve the preparation, supplementation, and timing of the entire system of emergency materials Kumar and Havey, 2013 [10].

Discussion

In order to determine the effect factors of the supply of emergency supplies, Liu and Xie suggested a workflow simulation system based on the Petri network for the preparation and scheduling of emergency materials [11]. In contrast, more academics concentrate on a single component of supplementing or transporting emergency supplies [12]. Emergency rescue

activities must start with the emergency materials being prepared and supplemented [13]. The ideal routine store of emergency supplies for various types of emergencies has been extensively researched [14]. Resolved the maritime industry's location issue based on stochastic dynamic programming and sample-path approaches, the degree of the patients [15]. The COVID-19 pandemic's supply and demand interruptions have a substantial impact on the supply chain network, which may limit the effectiveness of the pandemic's medical material supply. In this regard, Nikolopoulos suggested a method based on statistical, epidemiological, machine-learning, and deep-learning models for forecasting the excess demand for goods and services during the COVID-19 pandemic. In response to the pandemic, Govindan et al. created a decision support system for demand management in healthcare supply chains. In the context of constrained resources, Naderi presented a generic planning and scheduling strategy for operating rooms. For the purpose of allocating and sharing a vital resource in the event of a pandemic, Mehrotra presented a stochastic optimization model.

Conclusion

Corominas had an idea an equipment reserve concept that is always available to fulfil demand at the start of and throughout a pandemic. Also, because of the government's rigorous controls, the transportation scenario during the COVID-19 pandemic is very different from typical settings. Consequently, a new research challenge is how to optimise the conveyance of medical supplies in such significant public health situations. Unfortunately, there is limited study on the distribution and transportation of medical supplies during significant public health emergencies like COVID-19. Emergency supplies planning are mainly a vehicle routing issue. There are a number of crucial management measures that need to be taken in order to ensure the medical supplies scheduling strategies suggested in this research are used in management practise. Prior to the occurrence of significant public health emergencies, routine medical supply planning should be done; emergency responses to the big public health emergencies should be performed following the occurrence. It is illustrated how logistics operations managers should respond to significant public health emergencies. The first stage in regular preparation is to gather the anticipated travel time and route between each pair of distribution centres or hospitals. After that, a fresh computation of the best routes for transporting medical supplies is carried out by resolving a sub problem.

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Conflict of Interest

None

References

1 Kumar S (2013) Health in international development Agenda: Present, past and future. Indian J Community Med 38: 129-131.

2 Papanicolas I, Kringos D, Klazinga NS (2013) Health system performance comparison: new directions in research and policy. Health Policy 112: 1-3.

3 Veillard J, Moses McKeag A, Tipper B (2013) Methods to stimulate national and sub-national benchmarking through international health system performance comparisons: a Canadian approach. Health Policy 112: 141-147.

4 Giuffrida A, Gravelle H, Roland M (1999) Measuring quality of care with routine data: avoiding confusion between performance indicators and health outcomes. Brit Med J 319: 94.

5 Crampton P, Perera R, Crengle S (2004) What makes a good performance indicator? Devising primary care performance indicators for New Zealand. New Zeal J Med 117: U820.

6 Arah O, Westert GP, Hurst J (2006) A conceptual framework for the OECD Health Care Quality Indicators Project. Int J Qual Health Care 18: 5-13.

7 Donabedian A (1966) Evaluating the quality of medical care. Milbank 44: 166-206.

8 Arah OA, Klazinga NS, Delnoij DMJ (2003) Conceptual frameworks for health systems performance: a quest for effectiveness, quality, and improvement. Int J Qual Health Care 15: 377-398.

9 Arah OA, Westert GP (2005) Correlates of health and healthcare performance: applying the Canadian health indicators framework at the provincial-territorial level. BMC Health Serv Res 5: 76.

10 Ten Asbroek AHA, Arah OA, Geelhoed J (2004) Developing a national performance indicator framework for the Dutch health system. Int J Qual Health Care 16: 65-71.

11 Mannion R, Braithwaite J (2012) Unintended consequences of performance measurement in healthcare: 20 salutary lessons from the English National Health Service. Intern Med J 42: 569-574.

12 Mainz J, Krog BR, Bjørnshave B (2004) Nationwide continuous quality improvement using clinical indicators: the Danish National Indicator Project. Int J Qual Health Care 16: i45-i50.

13 Berwick D, James B, Coye M (2003) Connections between quality measurement and improvement. Medical Care 41: I30-I38.

14 Collopy B (2000) Clinical indicators in accreditation: an effective stimulus to improve patient care. Int J Qual Health Care 12: 211-216.

15 Adair CE, Simpson E, Casebeer AL (2006) Performance management in healthcare: part II – state of the science findings by stage of the performance measurement process. Health Policy 2: 56-78.