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# Guest editorial: Health care supply chains in Africa

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## Introduction

This special issue focuses on health-care supply chains in Africa during the COVID-19 pandemic, which caused ineffable human suffering. The special issue tracks the impact of the COVID-19 pandemic on the health-care supply chains in Africa to understand how the health-care supply chains responded to the disruptions caused by the pandemic. Thus, presenting this special issue in the *Journal of Humanitarian Logistics and Supply Chain Management* is timely, as the journal focuses on humanitarian aspects, especially those experienced during pandemics, disasters, wars and other catastrophes. Humanitarian logistics and supply chains are crucial in saving human beings in critical times. Altay et al. (2021) celebrate the growth of the humanitarian logistics as a discipline, which they argue had scanty research prior to the mid-2000s. As editors of this special issue in a highly reputed journal, we are delighted to contribute to strengthen humanitarian supply chain research and publications.

Health-care supply chains are prominent in humanitarian logistics and supply chain management. The challenges brought by the COVID-19 pandemic in Africa reminded African countries of the importance of thoughtful health-care supply chains. It is a must that health-care supply chains in Africa are re-imagined and transformed. The current special issue brings to the fore empirical findings on the COVID-19 disruptions in Africa and provides some useful lessons for Africa to improve health-care supply chains.

The seven articles selected for this issue are among those that were presented at the third African Conference on Operations and Supply Chain Management (ACOSCM) organized by the University of Rwanda and the Kühne Foundation (LEED Program) on September 29 and 30, 2021. ACOSCM is an annual international conference funded by the Kühne Foundation (LEED Program) to encourage logistics and supply chain management research and dissemination of results in sub-Saharan Africa. After peer review of the submitted papers, the seven papers were accepted for publication. The articles are all based on original scientific research carried out by researchers in Africa, where the Kühne Foundation (LEED Program) builds logistics and supply chain management capacity in universities.

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## Aims of the special issue

This special issue is devoted to make an empirical and analytical review of the impact of the COVID-19 pandemic on the health-care supply chains in Africa with specific case studies. The issue seeks to further contribute to policy uptake, and authors are encouraged to write policy briefs to influence policy change in their respective countries. This issue then is vital in disseminating research findings and the Emerald platform is commended for accepting the special issue. Through this publication, it is hoped that African researchers will be encouraged to conduct research and publish in peer-reviewed journals. Broadly, the seven papers cover the following themes:

- disruptions in essential medicine supply chains during the COVID-19 pandemic;
- last-mile delivery efficiency of medical supply chains;
- utility of maturity model to assess the performance of health-care supply chains;
- efficiency of specific health commodity supply chains;
- lean thinking applications in health supply chains;
- physiognomies and creative accounting in the health firms; and
- innovative supply chain solutions by students to tackle health supply chain challenges.

## Overview of selected articles

Alfred Sallwa in the first article discusses supply chain gaps related to target, time and coverage that affected medical supplies in Tanzania because of the COVID-19 pandemic. Specifically, he mentions the failure of distribution channels to embrace rapidly emerging markets and demand distortions, unstable supply chain partnership, absence of effective demand forecasting, supply chain inelasticity in countering distortions, nonprioritized medical sector and lack of policies to govern medical supplies during pandemics. He argues that the pandemic accelerated economic tension and that businessmen (distributors, wholesalers and retailers) felt the shock, which created forester effect on the demand of medical supplies and increased the risks relevant to supplies. He claims that the decrease in medical supplies during the COVID-19 pandemic in Tanzania resulted from the pandemic, as it created uncomfortable and unstable environments for the medical supply chains. He provides a number of recommendations for the Tanzanian health sector to better prepare for such pandemics.

In the second article, Usman Nuradeen Miko and Usman Abbas analyze the last-mile delivery determinants at the Nigeria's Kaduna Health Supplies Management Agency (KADSHMA) as a case study. Last-mile delivery, they argue, must be very efficient during pandemics such as the COVID-19 pandemic so that goods can reach the vulnerable on time. The authors propose a delivery model with five determinants: delivery cost, delivery time, mode of delivery, facilities technology and product mix to predict the efficiency of products' delivery from the warehouse to the customers. Miko and Abbas posit that previous research has omitted a comprehensive analysis of the determinants of last-mile delivery efficiency and that having such a comprehensive analysis can help to decrease the high

mortality rate in Nigeria. Their findings reveal that four of the determinants: cost, time, mode of delivery and facility technology have positive and significant association with efficient last-mile delivery, while the product mix variable exhibits negative association though it rated as significant relationship with efficient last-mile delivery. Miko and Abbas recommend that the product mix should be manageable to reduce the cumbersomeness in the service delivery. Furthermore, they argue that transport means should be made available at the health supplies points, proper time schedules put into force and effective communication network facilities be intact.

In the third article, Ramatu Abdulkadir, Dante Benjamin Matellini, Ian Jenkinson, Robyne Pyne and Trung Nguyen draw on a maturity model to assess the effectiveness of public health-care medicine delivery channels in Nigeria and report substantial cases of essential medicine stockout. They argue that procurement is critical for the availability of medicines to patients and that adequate planning and use of appropriate demand forecasting approaches minimize stockout. They hold that adequate storage facilities such as the pharma-grade warehouses are important to maintain the integrity of the medicines, especially with the high temperature in sub-Saharan Africa. Furthermore, they posit that health-care supply chains need high level of coordination to ensure that medicines are delivered at the right time and to the right patients. The authors further argue that funds and financial management appear to be the weakest link for most of the supply chains and that the use of manual processes and limited use of visibility platforms hamper performance. They argue that in their study, inventory management was the most affected category by the constraints in the supply chains. They recommend the deployment and institutionalization of performance management practices and continuous improvement in health-care supply chains.

Adesola Olalekan, Victor Igweike, Oloruntoba Ekun, Abosede Adegbite and Olayinka Ogunleye in the fourth article assess 12 pre-eclampsia and eclampsia health commodities' supply chains in public hospitals in Lagos State, Nigeria during the COVID-19 pandemic. The authors conducted a cross-sectional study across 50 primary health-care centers and hospitals in Lagos State at the onset of the COVID-19 pandemic and interviewed managers of health commodities using a validated Logistic Inventory Assessment Tool. They report that while there is high availability of pre-eclampsia and eclampsia medicines across all health commodities in Lagos State, the storage capacity is low for some of them. In the main, the authors found that Nigeria has built a unified and responsive health system for promoting effective health-care delivery related to pre-eclampsia and eclampsia. To fortify the system, they suggest a number of interventions: maintenance of adequate quantity of medicines to avoid stock out instances, modifying health commodities list to reflect the real on the ground demand, updating list of health commodities needed, conducting regular supportive supervision and instituting policies to improve access and utilization of available maternal and perinatal services.

Considering its importance in logistics and supply chain, Augustin Kessy, Gladness Salema and Yusta Simwita analyze

lean thinking in medicine supply chains by considering its applications and success factors in fifth article. The article determines the drivers and wastes of medical commodity supply chain, and the existing lean tools and practices together with their application in the supply chain processes. Furthermore, they examine the challenges and success factors for effective lean application in the medicines and laboratory commodities. Their findings are that the main drivers for waste associated with supply chain were demand management, supplier development and institutional framework and governance. Other drivers were supply chain capabilities, incentives and culture. On the contrary, the wastes were observed at the level of inventory, operation costs, transaction costs, delays in terms of service and commodity delivery time and quality. Digitalization, information technology, effective utilization of human resources capacity and standardization were the tools for medical supply chain. However, poor infrastructure, unreliable internet supply, environmental uncertainty and poor management support posed challenges to realize effective supply chain.

Usman Abbas and Shehu Hassan in the sixth article examine the influence of procurement physiognomies (procurement planning, electronic procurement, procurement legislation compliance, outsourcing, procurement staff competency and strategic supplier partnership) on the creative accounting of listed health-care firms in Nigeria. Their findings show that procurement planning, electronic procurement and procurement legislation compliance have a negative significant effect on the creative accounting of listed Nigerian health-care companies, while on the other hand, outsourcing, procurement staff competency and strategic supplier partnership have a positive significant impact on the firms' creative accounting. As per the findings, they argue that procurement physiognomies play a very important role in managing creative accounting health-care firms.

In the seventh article, Joseph Onyango reports on Strathmore University's students' supply chain ideation to develop solutions through an internship hackathon program attended by 12 students. The hackathon involved the development of solutions for ensuring the availability of essential medicines in low- and middle-income countries during the COVID-19 pandemic. He discusses the winning project themed "Healthcare Systems Evolution" for procurement transparency and accountability of medicine, adopted by the Kenya Medical Supply Chain Agency. He argues that the hackathon narrowed the gap between theory and practice, as it blended internship with mentorship and that it provided both mentors and mentees an enriching experience. He observes that the rapport the mentors built with their mentees was instrumental in developing positive experiences, as this created room for interactivity that enhanced learning. Onyango perceives the mentorship as a holistic approach to solving industry challenges and more relevant to the logistics and supply chain industry in the Sub-Saharan context. He argues that students also learnt practical and hands-on experiences in developing innovative solutions and recommends mobilization of more resources for such activities.

## Conclusion

The health-care supply chains are not completely free from lapses and deficiencies across Africa. The articles in this special issue have highlighted specific challenges faced by African countries and recommended ways for improvement. The authors are commended for their interesting researches and findings to improve the health-care supply chains in Africa and are encouraged to write policy briefs to influence policy action in their respective countries.

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## Further reading

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