



(RESEARCH ARTICLE)



## County Government Administration and the Implementation of Covid Mitigation Measures in Machakos County, Kenya

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International Journal of Science and Research Archive, 2024, 13(01), 013–024

Publication history: Received on 02 July 2024; revised on 30 August 2024; accepted on 01 September 2024

Article DOI: <https://doi.org/10.30574/ijrsra.2024.13.1.1475>

### Abstract

The Constitution of Kenya (2010) ushered in devolution, and the transfer of several services including public health from the central government to the county to push for interventions that best fit the local context. The onset of Covid-19 pandemic in 2019 brought uncertainty, vulnerability, and increased health care responsibility for county governments. The county governments were faced with the challenge of handling a global pandemic. This study sought to examine the implementation of covid mitigation measures by the county government of Machakos in Kenya. The objectives of the study were to analyse how the county government prepared isolation facilities and provided medical equipment for Covid-19 mitigation. The study was guided by the agency theory and the theory of decentralization. It adopted descriptive research design. The target population was 128 health practitioners and management staff at the Machakos county level 5 hospital and census sampling was preferred. A self-administered questionnaire and key informant interviews were used to collect data. The statistical software for the social sciences version 25 was used to examine quantitative data, while content analysis was used to assess qualitative data. The findings showed that the county government did very well in the provision of isolation facilities and the provision of medical equipment. The study noted the timeliness and adequacy of government interventions were concerning. For the readiness for future pandemics, the study recommends establishing early warning systems, creating robust and strengthening of existing healthcare systems, strengthening research and development and the legal and policy framework.

**Keywords:** Covid-19 Pandemic; Mitigation measures; Isolation facilities; Contact Tracing; Medical equipment

### 1. Introduction

Decentralization of health systems dates back in the year 1978, with the 'Alma Ata declaration' which among other things advocated for the participation of the public members in matters of their health management [35]. Studies conducted on decentralization of health have used different approaches in the examination of the faces of that decentralization and the health system function. Panda & Thakur examined decentralization and the performance of the Indian health system and noted that identifying performance characteristics is a challenge in the newly developed paradigm of health care [25]. Similar findings were made by Abimbola, Baatiema & Bigdeli who highlighted that it is necessary to establish relationships amongst factors such as monetary allocations, autonomy at the decentralized level, stakeholder's perception, and service delivery in establishing the performance of decentralized health systems [1].

Across the globe, decentralization has been recommended as an important solution towards health sector reforms [6]. Bossert discovered that wealthier communities in Chile and Colombia were able to allocate more to the health sector than their less wealthy locals, creating a perception of disparities [6]. He examined the association between decentralization and health sector efficiency. In a different area of study, a creative evaluation of the decentralization of the logistics system for vaccinations, necessary medications, and contraceptives in Ghana and Guatemala revealed the complex relationship between decentralization and the effectiveness of the health sector [28].

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Covid-19 pandemic, similarly, recognized as coronavirus pandemic is a global pandemic that came to light at the end of 2019 as an acute respiratory disease (SARs-CoV-2), that was first noted in China before spreading to the whole world [30]. The spread observed in Covid-19 proved a global health crisis in modern time, much worse than the World War II, reaching more than two million deaths within a given period of time and more so, an unprecedented socio-economic crisis in the world [30]. Covid-19 stressed to a limit every country it touched, creating devastating social, economic, and political impacts at a national level and more so, at a sector and organizational level [34, 36]. Vulnerabilities and impacts of the pandemic have been felt by national economies and at organizational levels too.

Governments across the world rushed to implement control measures to prevent the spread. Hopman, Allegranzi & Mehtar, conducted research on how developing countries managed covid-19, demonstrated that it was possible for the spread to be contained by prioritizing tried-and-true public health outbreak measures [16]. Citing the China's experience, Hopman, Allegranzi & Mehtar, observed that, mitigation measures ranging from isolation of the infected, quarantining and observation, enforcing social seclusions and distancing, among other community containment measures where rapidly implemented curtailed the spread by significant margins [16]. Physical distance practices adopted by the UK public were seen to drastically reduce the levels of contact and therefore led to a significant impact and decline in new covid infections, according to a study on the quantification of the impacts of such measures in the country. The study went on to say that the largest obstacles to the adoption of the measures were majorly the lengthy delays between infection, the onset of clinical infection, and hospitalization, as well as additional delays in reporting of these events [18].

According to studies done in the region, 74% of African countries already have an influenza pandemic plan in place, with the majority of them having been revised after the swine flu (H1N1) outbreak in the year 2009 [13]. Gilbert, et al., provide additional evidence that the majority of these plans are ill-equipped to handle severe acute respiratory outbreaks like Ebola and Covid-19 [13]. Recent severe outbreaks in Africa, like Ebola and H1N1, have highlighted the need for African states to invest more in bolstering their national public health infrastructures, as well as human capacity, disease-surveillance systems, and laboratory networks [22, 23].

The universal right to health is enshrined in the CoK (2010) and is considered an essential right for every Kenyan. Denial of this right is a violation of the Bill of Rights. To effectively implement these constitutional provisions, enabling statutes, policies, and various tools are necessary. Hence, the Health Act was enacted to support the Constitution's objectives, particularly in ensuring that all Kenyans had access to quality healthcare. The Kenya Vision 2030, the government guarantees that all citizens have access to high-quality and effective health care benefits. Through its medium-term plans, the Kenyan government further drives the agenda of ensuring that every citizen and resident can also access good health care in the country.

The objects of devolution as prescribed in chapter eleven of the Kenyan constitution, requires the county governments to enhance social and economic development and ensure the provision of easily accessible services throughout Kenya, benefiting all its regions [15]. The devolved governments must therefore ensure that they promote and protect interests and rights of everybody including the minorities and marginalized communities. County governments now have control over organizing and overseeing the provision of healthcare services at the county level because of the devolution of health services. In addition to other responsibilities, counties have the mandate to ensure adequate provision of primary healthcare, manage cleanliness and sanitation, provide ambulance services, and also monitor and respond to disease outbreaks among other responsibilities. The national government on its end must ensure that there is proper national planning and financing for health services and is in charge of the Information Management Systems for health, as well as ensuring proper running of national hospitals and referral facilities. To provide effective collaboration between the two tiers of government, the County Health Bill (2016) was enacted as the main regulation guiding the healthcare sector.

The devolved healthcare to the Counties has been faced with a lot of challenges. These challenges range from poor planning, misalignment of policies, inadequate participatory by citizens and inadequate budgetary allocations [29]. In addition, the newly established county governments are barely equipped to handle the immense pressure that came with the devolved functionalities. The case was more dire, with the unprecedented global changes presented by the widespread emergence of Covid-19 that brought uncertainties and vulnerabilities, and increased risks that the county government was not prepared to tackle. Further, the rural areas in the underdeveloped and developing countries were at a disadvantage given the difficulties in adopting effective responses and also due to inadequate and unequipped facilities, unpreparedness, and low capacity to handle growing cases of infections and also due to the widespread poverty [11].

While countries around the world have undertaken several measures to control the spread of Covid-19, minimal information on its onset made the process difficult. Research in the sector has focused on the measures that were put

in place without much focus on what the measures attained and the question on the preparedness of the county government in Kenya is still unanswered [2]. A study on the effects of devolution on healthcare system performance in Machakos Level 5 hospital, Kenya questioned the rationale of the devolution highlighting challenges that present themselves when the process is more political [24]. Some challenges mentioned by Mutua et al., included issues related to staff adequacy, satisfaction and the infrastructure, all which would affect the efficiency especially in managing covid-19 [24].

The study sought to examine the critical role played by the devolved units in providing the much-needed services for the mitigation and curtailing of the spread of Covid-19 with a key focus of Machakos County.

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## **2. Literature Review**

### **2.1. Agency theory**

Jensen and Meckling (1976) created the concept of agency. They proposed a hypothesis explaining how conflicts of interest between a company's owners or shareholders, management, and significant debt financiers form the foundation of the organization's governance [19]. According to Jensen and Meckling, the agency relationship is characterized as a contractual arrangement between a company's managers and owners, with the owners serving as the principal and appointing an agent to oversee the organization. In this arrangement, the owners are required to delegate decision-making authority to the management. The CoK (2010), in article one, it is stated that in Kenya, all sovereign power belongs to the people and must be actively exercised according to the constitution. In this study, the citizens are the principal as provided in the constitution. Article one of the CoK (2010) further provides that the people have the option to exercise their power either directly or through the election of representatives in a democratic process in Kenya. The study, therefore, considers the county governments as the agents for the people of Kenya. The people, by the virtue that all resources belong to them, requires the government to act in their best interest.

Agency theory guides this study by providing the basis at which the county governments needed to provide for the covid-19 mitigation measures for the interest of their communities. The decentralized unit which are the agents, have the responsibility of providing the locals with public goods and services. The principal-agent relationship provides the decentralized authorities with a responsibility in accessing better information and as such tailor solutions based on the citizen's needs.

### **2.2. Empirical review**

Countries across the globe, development partners such as donors and international organisations have overtime embraced decentralized method of governance in health sector as a way of enhancing efficiency and responding to the needs and priorities of members of the public at all levels. Research conducted on devolution have shown that community needs are better addressed at the decentralized unit as it allows for better ownership by all parties involved in such levels and their needs are better known at the community level [7]. In the year 1978, there was the Alma-Ata declaration which among other things supported decentralization as an effective way of meeting primary healthcare needs. Without doubt, any healthcare system has its main objective being to address the needs of the public members and more so ensuring that they have access to affordable and excellent health care services. Collins & Green highlights the benefits of decentralization in the health sector as a prerequisite to achieving the global development goals [7]. A fundamental argument pro to decentralization is that there is improved access to public goods and services especially to the marginalized and underserved regions and people. There is improved address to community need and quicker and more efficient response to the needs of the masses and better coordination of the stakeholders involved [8]. The World Bank aptly highlighted the injustices and inequalities that prevail in the healthcare systems of many developing countries [34].

In a study on facilities for centralized isolation and quarantine for the observation and treatment of patient with Covid 19, Wang et al., provided experiences with the medical facilities used for centralized isolation during the COVID-19 epidemic in China, as well as recommendations on how to further enhance the handling of confirmed cases, suspected cases, and close contacts [32]. Refitted non-designated hospitals, quarantine hotels, and Fangcang shelter hospitals are the three types of centralized isolation facilities in China that have been modified to handle and isolate confirmed and suspected cases [32]. The immediate, strong demand for space was lessened by these facilities. Furthermore, new designs, management strategies, and preventative measures were put in place by governmental organizations and authorities to reduce the danger of infection in these facilities. China's experience in deploying social resources optimally in response to the COVID-19 epidemic could serve as a model for other countries and areas.

Tsofa, Molyneux, Gilson, & Goodman conducted a study in Kilifi County, Kenya, examining the impact of decentralization on sector planning and financial management [29]. They found that a key challenge in the health sector was the lack of alignment between policies, technical planning, budget allocations, and insufficient community involvement in priority setting. Using qualitative research and a case study approach in Kilifi County, guided by decentralization and policy analysis theory, the study revealed that devolution provided opportunities for local governments to prioritize and engage communities effectively. However, the study also highlighted delays in transferring functions from central to decentralized units, affecting the devolution of the health sector. To optimize the benefits of decentralized health systems, decision-making space, organizational structure, capacity, and accountability should guide resource allocation, priority setting, and financial management between central and decentralized units [29].

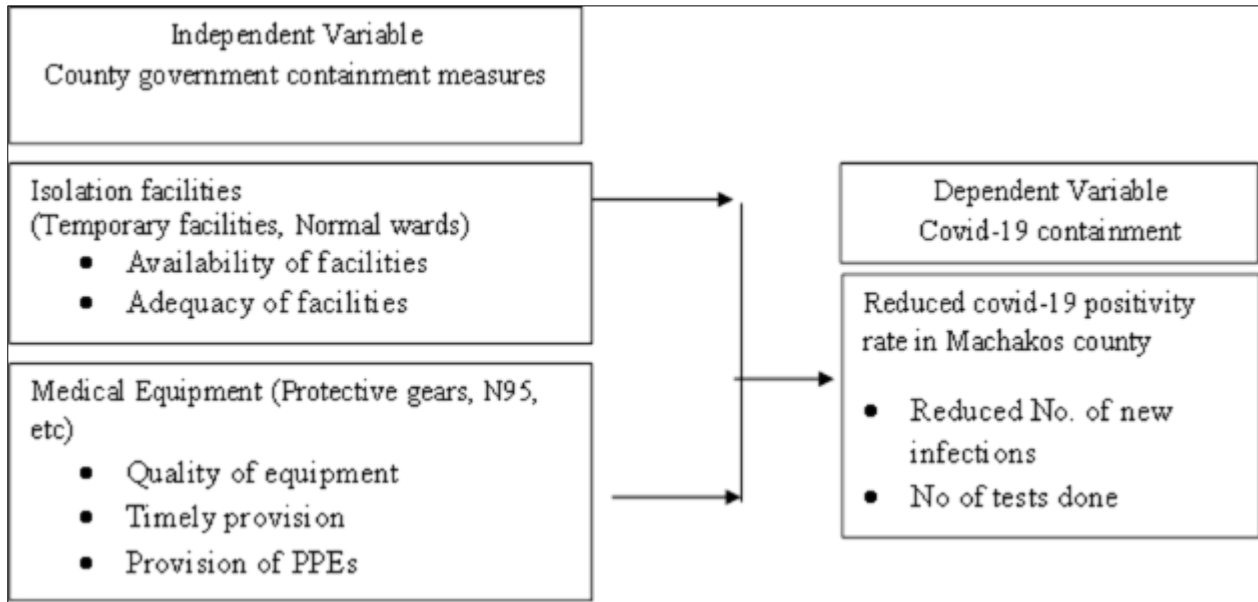
A study on India's governance of Covid -19 at the local units that focused on its prevention and social security, Dutta & Fischer makes a case of the success of local government in coordinating pandemic responses [11]. Through conducting interviews and policy reviews, Dutta & Fischer showcased the critical role that the local government plays at the center of the coordination across the cross-sectoral and multi-scalar interactions [11]. The study further highlighted key challenges and uncertainties in crafting the appropriate responses. According to WHO the virus presented uncertainties epidemiologically and as such planning was difficult as the infection trajectories were yet to be understood [33]. The study showed that the way the virus and its control mechanism varied from one society to the other and across the differences in the populations. Das elaborated that by stating that pandemic governance varied extremely across diverse regions of the world and as such similar policies such as the lockdowns played out very differently for the different classes of people [9]. Further, the study showed apprehension on public coordination strategies and called it a monumental task especially in the growing economies [11].

Dutta & Fischer also examined the theoretical explanations as to why the local government can perform better at the grassroot setup [11]. They supported Munoz, Amador, Llamas, Hernandez & Sancho explanation that decentralized systems are better positioned to achieve community empowerment and quick decision making in line with the local needs [23]. The embedment by the local government to the society they serve provides for a more responsive approach and also more accessible. Further the local government is more accountable to the locals. Kruks-Wisner also emphasizes that local governments are potentially more effective in implementing disease control measures and social security functions due to their ability to foster local cooperation and responsiveness to public needs during times of distress [20]. However, Dutta & Fischer's study was constrained by a small sample size and a lack of detailed data on infection rates and socio-economic outcomes, preventing comprehensive assessments of overall governance effectiveness based on these accounts [11]. To address the gap, this study further sought to study the implementation of the Covid-19 mitigation measures in Kenya, with a special focus on Machakos county, a decentralized unit and as such add new knowledge into the sector.

A study on the government's response to the covid-19 pandemic in Vietnam showed that, the success in fighting Covid-19 lied within the ability to deploy local governments effectively. Vietnam as a case study, proved that there was value within the ability of Covid-19 steering committees reflecting the provincial set-up. Huynh, Tosun, Yilmaz, explains that the provincial emergency committees in Vietnam were able to effectively monitor and detect early infections, monitor border crossings, airports, and seaports, particularly for passengers coming and going [17]. Giang supports these finding and praises the proactive public health practices of the Vietnamese government especially on the seamless multi-sectoral collaborations [12]. As a nation, Vietnamese was able to effectively achieve this coordination given the long history and progress in the attainment of decentralized governance system that dates back to the 1975 [10]. This Vietnam's case exemplifies the vital role of coordinated efforts between central and local governments, as well as a comprehensive all-of-government approach, in effectively addressing policies pertaining to the COVID-19 pandemic. The research also revealed adverse relationships between two other provincial capacity indexes and the quantity of COVID-19 cases. This, therefore, means that the capacity of the decentralized governments was not in their totality the only determinant of low covid-19 cases. This finding is consistent with that of Sevindik, Tosun, & Yilmaz, who found that there was clear evidence of a link between several indicators of provincial strength and COVID-19 case fatality and death rates [27].

### **2.3. Conceptual Framework**

In this study, the independent variables feature the County government mitigation measures. These mitigation measures include isolation facilities, medical equipment and provision of PPEs. These are factors that the county needed to put in place for the attainment of the Covid-19 mitigation. The dependent variable will be measured by the covid 19 positivity rate



**Figure 1** Conceptual Framework. Source (Researcher, 2023)

### 3. Methodology

This study adopted the descriptive research design. This design was appropriate to the study because it sought to gather information on how the variables under study relate. The research design brought out the relationship between action taken and how that led to Covid 19 mitigation. This study took place in the County government of Machakos, Kenya. Machakos county is one of the 47 counties established through the CoK 2010 [15]. The population under study was acquired from the Machakos Level 5 hospital and at the county department of health. A structured self-administered questionnaires were preferred for this study. All the quantitative data obtained was analyzed into descriptive statistics, computed in percentage values to obtain the frequency distribution and acquire mean and variation as measures of central tendencies and measures of variation respectively. Qualitative data collected from the open-ended questions was cleaned and grouped into thematic categories, coded and subjected to context analysis and interpretation.

### 4. Findings and Discussion

The data collected was analyzed and reported where the results obtained were presented in the form of tables, followed by a brief interpretation and a discussion on research findings. Data analysis was guided by the research objectives.

#### 4.1. Demographic information

Table 1 shows the demographic information of the respondents.

**Table 1** Demographic Information

		Frequency	Percent	Cumulative Percent
Gender	Female	57	72.2	72.2
	Male	22	27.8	100.0
	Total	79	100.0	
Age	19-29	30	38.0	38.0
	30-39	43	54.4	92.4
	40-49	6	7.6	100.0
	Total	79	100.0	
Level of Education	Diploma	43	54.4	54.4

	First Degree	28	35.4	89.9
	Second Degree and Higher	8	10.1	100.0
	Total	79	100.0	
Staff Category	Advocate	4	5.1	5.1
	Allied health professionals	2	26.6	31.6
	Assistant staff	4	5.1	36.7
	Doctor/clinical officers	16	20.3	57.0
	Nursing	28	35.4	92.4
	Support staff	6	7.6	100.0
	Total	79	100.0	
Years of experience	Below 5	30	38.0	38.0
	5 to 10	35	44.3	52.3
	10 to 15	8	10.1	10.1
	over 15	6	7.6	100.0
	Total	79	100.0	

Source: Research Data (2023)

The findings of the study in Table 1 shows that the majority of participants were female, constituting 72.2% of the total sample, while male participants accounted for 27.8%. The gender distribution enhanced equal gender visibility and diversity and equal gender contribution to the study. Age-wise, the participants were distributed across three categories. The age group of 30-39 had the highest representation, comprising 54.4% of the total, followed by the 19-29 age group with 38.0%. The 40-49 age group constituted 7.6% of the respondents.

Educational attainment was categorized into three groups. The majority of participants held a diploma, representing 54.4%, followed by those with a first degree at 35.4%. Respondents with a second degree or higher education level constituted 10.1% of the total sample. The participants were further classified based on their staff category, with nursing staff being the largest group at 35.4%. Allied health professionals and doctor/clinical officers each constituted significant proportions, accounting for 26.6% and 20.3%, respectively. In terms of years of experience, participants with 5 to 10 years of experience were the most prevalent, representing 44.3%. Those with less than 5 years of experience constituted 38.0%, while participants with over 15 years of experience comprised 7.6% of the total sample. The distribution of ages shown by the respondents was necessary in capturing diverse opinions from respondents at different levels and experience in their careers and this brought in diverse abilities, knowledge and understanding in conclusively responding to the questionnaires.

#### 4.2. Descriptive statistics

The study examined the critical role of local governance in coordinating pandemic response by focusing on the implementation of Covid mitigation measures by the county government of Machakos, Kenya. The respondents were asked to indicate the extent to which they agreed with the statements or indicators of the study variables. They rated the extent on a scale of 1 to 5 with one being strongly disagree and 5 being strongly agree.

##### 4.2.1. Machakos county government preparation of isolation facilities for containment of covid-19

The table shows results regarding the preparation of isolation facilities for the containment of COVID-19 at Machakos County where the respondents were required to express their opinions on various aspects related to the county's efforts.

**Table 2** Machakos county government preparation of isolation facilities for the containment of covid-19

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%	%		
Machakos county had set aside isolation facilities for the containment of covid-19 in time and in preparation and anticipation of the covid-19 pandemic	11.4	7.6	0.0	54.4	26.6	3.77	1.250
The isolation facilities in Machakos county were adequate.	0.0	15.2	20.3	53.2	11.4	3.61	.883
The isolation facilities in Machakos county met the standard set by the MoH guidelines "	0.0	0.0	31.6	38.0	30.4	3.99	.792
The isolation facilities were integral in the fight of Covid -19 prevention and mitigation	0.0	0.0	7.6	67.1	25.3	4.18	.549

Source (Researcher, 2023)

From the results, a significant number of respondents (54.4%) agreed that Machakos County had set aside isolation facilities for the containment of COVID-19 in time and preparation for the pandemic. A high average value of 3.77 indicated a generally positive perception, although not overwhelmingly so. The standard deviation of 1.250 suggests some variability in opinions, with a moderate level of agreement.

About the adequacy of Isolation Facilities, the majority of the respondents (53.2%) agreed that the isolation facilities in Machakos County were adequate (M=3.61, SD=0.883). This indicated a positive but slightly lower perception and less variability in opinions. This response was further supported by a senior staff in Machakos Level V hospital who stated that.

*"The isolation facilities were very important in the fight against covid-19 and the county government needed to move fast to ensure that they were adequate in anticipation of the surge in numbers of affected persons. The county leadership had to brainstorm on this issue and that's how the county ended up converting the stadium to a 200-bed makeshift isolation facility." P1*

Upon the enquiry into what were the kind of isolation facilities set up, the same respondents highlighted that the facilities included temporary holding areas and the dedicated normal wards in the hospital. He stated that.

*"The county management and the hospital had to decide to discharge all the non-critical patients so as to free up beds and have wards dedicated to the covid-19 patients. This was in addition to the temporary wards that were set up within the hospital and the stadium grounds. The need for more bed was a growing concern especially during the peak seasons" P1*

A good number of the respondents agreed that the isolation facilities in Machakos County met the standard set by the Ministry of Health (MoH) guidelines (M=3.99, SD=0.792). This suggested a relatively high level of agreement with the adherence to MoH guidelines. A senior officer and KII however, highlighted the challenges encountered citing that isolation facilities could also have facilitated more spread especially in the onset of covid-19 when the guidelines were not as clear. He said that.

*"The isolation facilities also potentially facilitated the transmission of the Covid-19 virus while forcefully quarantining tens of thousands of people in facilities that lacked proper sanitation, protective equipment and food. It is important that clear guidelines are prepared in advance and resources set aside to ensure that isolation does not cause more turmoil and distress in an already skeptical and stressed masses." P2*

Lastly, a substantial majority of respondents (67.1%) agreed that the isolation facilities were integral in the fight against COVID-19 prevention and mitigation (M=4.18, SD=0.549). The high mean score and the low standard deviation indicated a strong positive perception and high agreement among respondents on the effectiveness of the isolation

facilities in Machakos County. In the words of a senior KII respondent; *“we can’t undermine the critical role that isolation facilities played in the fight with covid-19 spread.”* P3

Therefore, based on the findings it was evident that Machakos County government generally received positive feedback on its preparation and handling of isolation facilities for COVID-19. Also, while there was some variability in opinions, especially regarding adequacy and compliance with guidelines, the overall trend suggested a reasonable level of satisfaction among the respondents. Finally, there was a strong agreement on the effectiveness of the isolation facilities in the fight against COVID-19 which was a positive indicator of the perceived impact of these measures. These findings underline the role of the decentralized form of government especially in addressing community need and quicker and more efficient response to the needs of the masses and better coordination of the stakeholders involved. These support different research findings that decentralizing health provides efficiency and service delivery [4, 5, 6]. Further, the process followed in the formulation of isolation and quarantine facilities mirrors the WHO guidelines provided and more so what was implemented in China as Wang et al., explained where facilities were categorized in line with levels of contamination and resources and guidelines set at that level [32,37].

**4.2.2. Machakos county government and provision of medical equipment for the treatment of covid-19 patients**

The results reveal perspectives among the respondents regarding the Machakos county government's efforts in providing medical equipment for the treatment of COVID-19 patients.

**Table 3** Machakos county government's efforts in providing medical equipment for the treatment of covid-19 patients

	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
There was adequate medical equipment for the treatment of covid-19 patients	40.5	11.4	43.0	5.1	3.13	1.017
There was adequate ICU and critical patients care for the treatment of covid-19	51.9	15.2	27.8	5.1	2.86	.997
Machakos county collaborated well and utilized partnerships for the provision of medical equipment	8.9	29.1	44.3	17.7	3.71	.865
Machakos county have adequate medical equipment to handle future similar or more severe pandemic and disease outbreaks	49.4	29.1	21.5	0.0	2.72	.800

Source (Researcher, 2023)

Based on the results, concerning the adequacy of medical equipment for COVID-19 patients, 54.5% (40.5% disagree and 11.4% neutral) expressed reservations or uncertainty, while 48.1% (43.0% agree and 5.1% strongly agree) considered the provision as adequate. The mean score of 3.13 indicated a moderately positive overall sentiment. Secondly, in terms of the sufficiency of ICU and critical patient care for COVID-19, a majority of 67.1% (51.9% disagree and 15.2% neutral) expressed concerns, while 32.9% (27.8% agree and 5.1% strongly agree) considered the provisions adequate. The mean score of 2.86 indicated a more cautious sentiment, and the standard deviation of 0.997 suggested varying opinions among respondents. A senior officer and KII highlighted that.

*“Our biggest undoing as a county and as a country too was never adequately preparing for the number of critical patients who ended up requiring intensive care unit. Setting up a fully functional ICU unit is an expensive affair requiring a lot of resources and this is an area that the county governments were unable to fully develop adequately.”* P1

The KII further stated that: *“At its peak, towards the end of 2020 and early 2021, there was a visible crisis with the number of patients requiring oxygen and ventilatory support.”* P1

Thirdly, regarding collaboration and partnership utilization for medical equipment provision, the majority (77.4% - 8.9% disagree and 29.1% neutral) acknowledged positive collaboration, with 62% (44.3% agree and 17.7% strongly agree) expressing satisfaction. The high mean score of 3.71 suggested a generally positive sentiment, and the low standard deviation of 0.865 indicated low variability, hence a higher level of agreement among respondents.



Lastly, regarding the adequacy of medical equipment for handling future pandemics, a substantial 78.5% (49.4% disagree and 29.1% neutral) expressed doubts, while 21.5% disagreed. The mean score of 2.72 indicates a more skeptical sentiment, and the low standard deviation of 0.800 suggested a relatively consistent agreement among respondents in their reservations. Upon probing further into what were the medical equipment provided, the second respondent said that.

Upon seeking further information about partnership and future preparation, a senior officer and KII at the county health department stated that:

*“We cannot out rule the need for better preparation in management of future epidemics of a similar nature and intensity like those of covid-19 and this cannot be done without putting in place necessary partnership mechanisms. Partnership is an integral part in ensuring that Kenya as a country put in place early warning system to monitor and address any concern early enough. This must be done in partnership with all relevant and key stakeholders in the management of infectious diseases including research centers and international players.” P4*

Generally, the respondents perceived positive collaboration and partnership utilization by the Machakos county government in the provision of medical equipment for COVID-19, concerns were raised about the adequacy of current provisions and their readiness for future pandemics. The variability in responses, as indicated by standard deviations, underscores the diversity of opinions within the surveyed group.

Upon enquiring more on what were the some of the medical equipment provided, a senior respondent at the County Department of health explained that.

*“The county rushed to procure and make available a fleet of ambulances for ensuring that the emergency cases were well catered for. Further, the county established a temporary isolation center at the Kenyatta stadium that was equipped with 400 beds, backup generators and security features. The need for ICU was a priority and the county management rushed to have fully equipped 20 ICU beds (Machakos – 10 beds • Kangundo– 6 beds • Mwala– 4 bed).” P3*

The respondents continued to explain that.

*“A County Multi-agency COVID Response Team at Machakos county was established as soon as Kenya received its first covid -19 case and county and subcounty rapid response teams established and trained and provided with ambulances and protective gears. The county further invested in an ISO certified lab equipped with PCR testing to reduce overreliance with Kenyatta and Mbagathi hospitals.” P3*

The study further sought to get the perceptions of respondents regarding the provision of PPEs by the Machakos county government for health personnel involved in the containment of COVID-19.

The findings suggested that a significant proportion, 36.7% (29.1% disagree and 7.6% neutral), had concerns or were uncertain about the adequacy of access to PPEs for front-line health personnel. On the positive side, 63.3% (53.2% agree and 10.1% strongly agree) expressed satisfaction. The mean score of 3.44 indicated a moderately positive sentiment, and the standard deviation of 1.022 suggested a degree of variability in respondents' opinions.

**Table 4** Machakos county government provision of PPEs for health personnel for containment of covid-19

	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
	%	%	%	%		
The front-line health personnel in Machakos county had adequate access to PPEs necessary for their protection	29.1	7.6	53.2	10.1	3.44	1.022
The PPEs used met the quality standards necessary for the containment of covid-19	8.9	12.7	57.0	21.5	3.91	.835

Source (Researcher, 2023)

Regarding the quality of PPEs used for COVID-19 containment, only a small proportion of 21.6% (8.9% disagree and 12.7% neutral) expressed concerns or uncertainty. A significant majority of 78.4% (57.0% agree and 21.5% strongly

agree) considered the PPEs to meet the necessary quality standards. The mean score of 3.91 indicated a strongly positive sentiment, and the low standard deviation of 0.835 showed a high level of agreement among respondents.

Generally, it was perceived that front-line health personnel in Machakos county had adequate access to PPEs for COVID-19 protection. Also, most of the respondents believed that the PPEs used met the required quality standards.

The researcher probed further on what were the PPEs provided where one of the respondents from Machakos level V hospital, P2 responded.

*“The PPE ranged from special protective gear and N95 masks for the front-line workers and medical staff who were more at risk. It was important to protect the medical staff because, as is they were not as many and therefore having all of them fit for duty at all times was necessary. Other commodities provided were ordinary mask, sanitizers and thermometers.” P2*

The findings from this subsection outlined the benefits for wholesome government approach for ease of resource mobilization for an effective emergency response. This supports Sevindik, Tosun & Yilmaz findings for a study carried out in Indonesia [27]. Further similarities were observed with the study conducted by Baker & Refsgaard, which advocated for local solutions specially building on their familiarity with local community needs is a critical factor in the designing of well responsive programmes especially in the public health sector as observed in Machakos county formulation of rapid response teams in county and subcounty levels [3].

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## 5. Conclusion

The study not only highlights the importance of preparation of isolation facilities as a measure for containment of pandemics but its timely implementation. The Covid-19 exposed gaps in the process of preparation of isolation facilities including the timeliness and quality of the facilities. To ensure effectiveness in the prevention and control of epidemic and pandemic-prone acute respiratory infections, proper guidelines need to be in place documenting practices and procedures to be adhered to in the preparation and implementation of the isolation facilities.

Secondly, the study examined the extent to which Machakos county government provided medical equipment for the containment of covid-19 patients. Covid -19 presented a surge in the demand for personal protective equipment, medical products and therapeutics used in intensive care units and isolation facilities. With the many overlying priorities requiring resources, it can be very easy to overlook preparation issues and only plan to deal with the pandemic when it's too late. An outbreak presents far arching disruptions to all other sectors and most services, especially in the health sector. Shortages of critical medications such as contraceptives, antiretroviral drugs for HIV/AIDS, antibiotics among other medications is common in the pandemic period and therefore the government should have proper documented procedures and contingency budget set aside in preparation of any pandemic occurrences.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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