



MARKET ASSESSMENT OF MEDICAL DEVICES USED FOR COVID TREATMENT IN INDIA

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Introduction

- **An Overview of Medical Devices**

- An essential element of patient care is the use of medical gadgets. Because of their complexity and the fact that most medical devices have power factors, there are now higher criteria and procedures for safety. Our series on developments in medical isolation transformer design begins with this article, [An Introduction to Medical Devices](#).

- **A medical device is what?**

- Any appliance, instrument, material, apparatus, or other item that is either used alone or in conjunction with other tools or devices, including the software necessary for its intended usage by the manufacturer, and that is intended to be used for people for the purposes of:

- diagnosis, prevention, monitoring, treatment, or alleviation of disease
- disease diagnosis, prevention, monitoring, treatment, or symptom relief
- diagnosis, surveillance, therapy, pain relief, or disability compensation
- examination, substitution, or alteration of the physiology or of the anatomy
- control of conception and that, while it may be aided in function by pharmacological, immunological, or metabolic mechanisms, does not achieve its primary intended action in or on the human body.

Medical Device Types

Active medical device — Any medical gadget that depends on electricity or any form of energy other than that produced directly by the human body or gravity is referred to as an active medical device.

Active implantable medical device — any active medical device that is designed to be surgically or medically inserted entirely or partially into the human body or through a natural orifice and to remain there after the procedure.

In vitro diagnostic medical device — any medical device that is a reagent, reagent product, calibrator, control material, kit, instrument, apparatus, equipment, or system, whether used alone or in combination, and intended by the manufacturer to be used in vitro for the examination of specimens, including blood and tissue donations, derived from the human body, with the sole or primary goal of providing information:

Literature Review

- SARS-CoV-2, or the severe acute respiratory syndrome coronavirus, can cause the 2019 coronavirus disease (COVID-19), a pandemic that resulted in numerous and long-lasting interruptions in the global supply of many different commodities and services. Hospitals discovered that inventory management strategies used to maximise efficiency were unable to keep up with rapidly growing demand, especially for COVID-19 pertinent medical items, such as ventilators, testing supplies, and personal protective equipment (PPE). These gadgets have a complicated supply chain that uses a wide range of raw materials and a number of organisations. A better understanding of these supplies' supply chains COVID-19 applicable Medical equipment might offer context and insight for ongoing supply issues, while long-term support for system resilience.
- Beginning in 2011, the WHO Priority Medical Devices project established the process for choosing medical devices needed for diagnostic, therapeutic, or rehabilitative purposes due to disease or clinical intervention. More illnesses and medical disorders have been added to the list over time. The priority medical equipment lists' ultimate goal is for Member States to use them as a guide for creating or updating their national lists in order to ensure patient access, procurement, availability in healthcare facilities, and appropriate use. These lists should be modified by nations and environments based on the infrastructure, health workforce, financial resources, and local priorities that are available. Priority medical devices for the present pandemic are included in this book, which WHO developed in the last five years. These lists include those needed for reproductive, maternal, neonatal, and child health, as well as specific diseases like cancer and Ebola. (WHO, 2020) (2)

Literature Review

- The healthcare sector in India has experienced substantial expansion during the past ten years. However, access to high-quality, reasonably priced healthcare is still difficult in many areas of the country, and healthcare provision is still uneven.
- Governments across the world have established travel restrictions because of the COVID-19 epidemic, which has influenced the trafficking of subpar and fake medical supplies. Interpol and the World Customs Organization (WCO) announced that in March 2020, there was an increase in the number of substandard and counterfeit medical products seized, including personal protective equipment (PPE).
- In terms of income and employment, the healthcare sector has grown to be one of the biggest in India. Since 2016, it has expanded at a CAGR of 22%, directly employing 4.7 million people. Between 2017 and 22 the sector has the potential to add 2.7 million new employment in India, or over 500,000 new jobs annually.
- A point-of-care (POC) diagnostic gadget is a tool used to gather specific clinical data about patients in clinical and resource-constrained situations. The traditional clinical diagnostic process is time-consuming and expensive because it calls for expensive, high-end equipment, a skilled technician to operate it and interpret the results, among other factors.

Literature Review

- In the twenty-first century, India's healthcare system has made major improvements. India has shown consistent 10 percent growth in this industry, and by 2025, it is anticipated to reach \$280 billion. In 2016, India spent only \$75 per person on healthcare, a pittance compared to the US, EU, China, and global average (\$9403, \$3613, \$420, and \$1061, respectively), which spent \$9403, \$3613, \$420, and \$1061, respectively.
- Vital sign monitoring is provided by a medical wearable device. In order to monitor fitness and perform medical diagnostics, it involves monitoring one or more of the physiological vitals listed below as well as any others, including blood glucose level, blood pressure, pulse rate, electrocardiogram (ECG) patterns, respiration rate, and respiration effectiveness (e.g., blood oxygen saturation). Therefore, medical wearable devices are incredibly helpful preventative technology.
- Global concerns have been raised about shortages of vital materials used to prevent, identify, and treat COVID-19, and price speculation and increases may have had a negative impact on availability. In Ecuador during the initial pandemic response, when the highest mortality rates were recorded in a single day, this analysis identifies variation in costs of goods obtained through government-driven contracts
- An outstanding accomplishment is the quick creation of the medicinal device against COVID-19. The global population is effectively up against a number of barriers, from production to distribution, deployment, and acceptance. Due to the growing awareness of and need for home medical equipment, numerous manufacturers have joined the market.

Research question

- What is the future market of medical devices in India?
- Which are more preferred devices used in emergency in Jaipur using questionnaire?

Research Objectives

- **To Access the current market for Medical Devices in India.**

To access the current market, we need to study the market requirements, market gaps, market insights & market availability using a questionnaire.

- **To Study the Supply gaps during covid pandemic.**

The supply gap in Pharmaceutical market could happen due to lesser manufacturing of products, that's why along with current market, a forecast is needed to be done by taking the data of supply gaps during covid pandemic.

- **To Study the Sales increment during covid pandemic.**

As increasing demand & needs of products may result into getting the higher sales and reaching the targeted point in a minimal time.

- **To Study the Majorly used covid rapid test kit.**

Getting the higher no. of cases was not able to be identified by pathology labs, so the higher use of covid rapid test kit took place at domestic level. So by doing this study a future need & forecasting could be determined.

Methodology

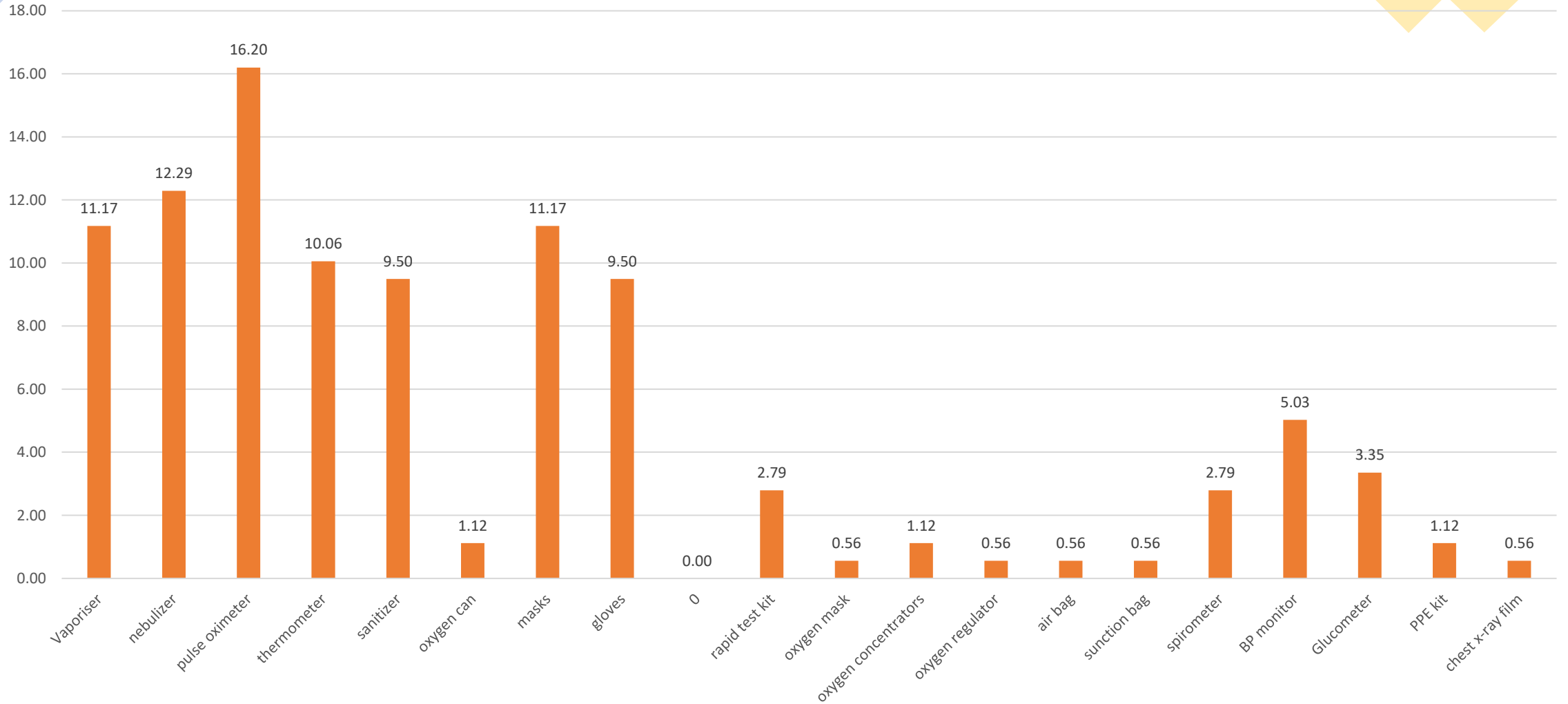
- **Study Design:** Cross Sectional (Descriptive)
- **Study duration:** 3 Months
- **Study area:** Jaipur, Rajasthan
- **Study participants:** Retail pharmacies of Jaipur
- **Data collection tool and techniques:** A structured questionnaire was used for retail pharmacies
- **Sampling :** Convenience Sampling (Non-probability)
- **Response received:** 30
- **Data analysis:** Microsoft Excel



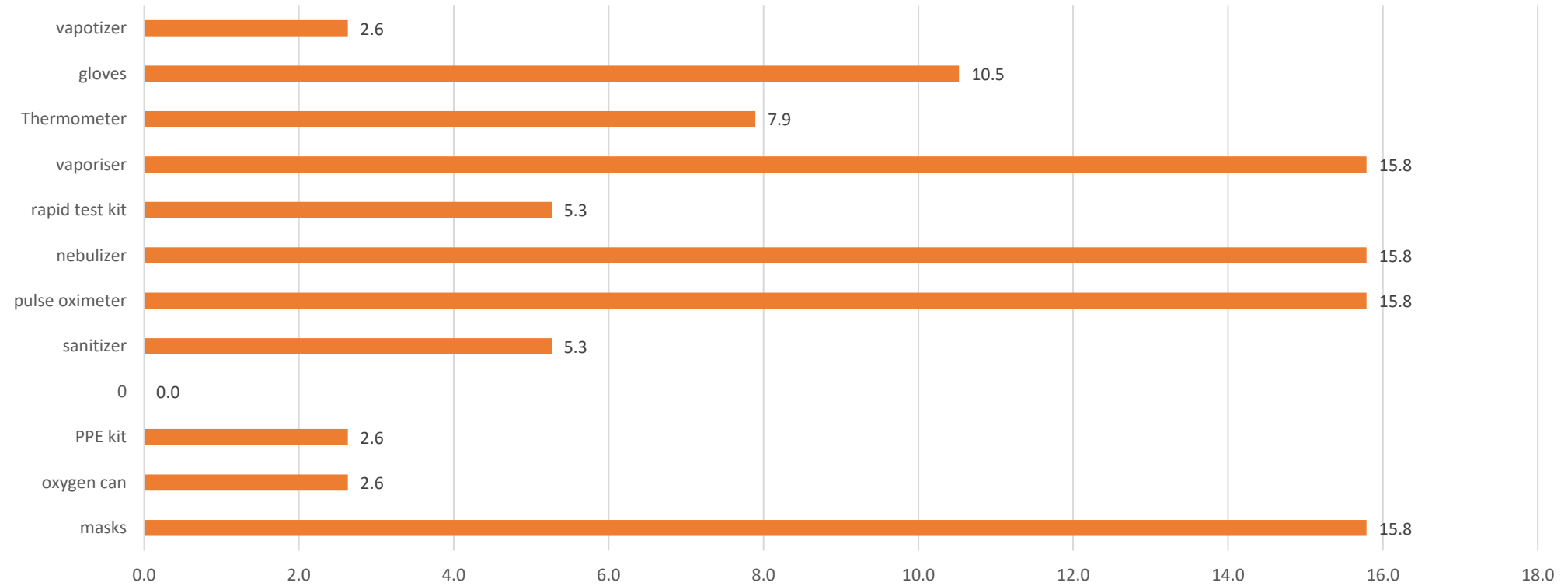
Results

- The study includes 30 respondents (pharmacies and retailers) from different locations of Jaipur. The data taken from retail pharmacies of Jaipur region states about the market requirements, market gap, market trends of pharmaceutical market
- We analysed the data in different graphical representations such as pie charts, bar graphs as followed:

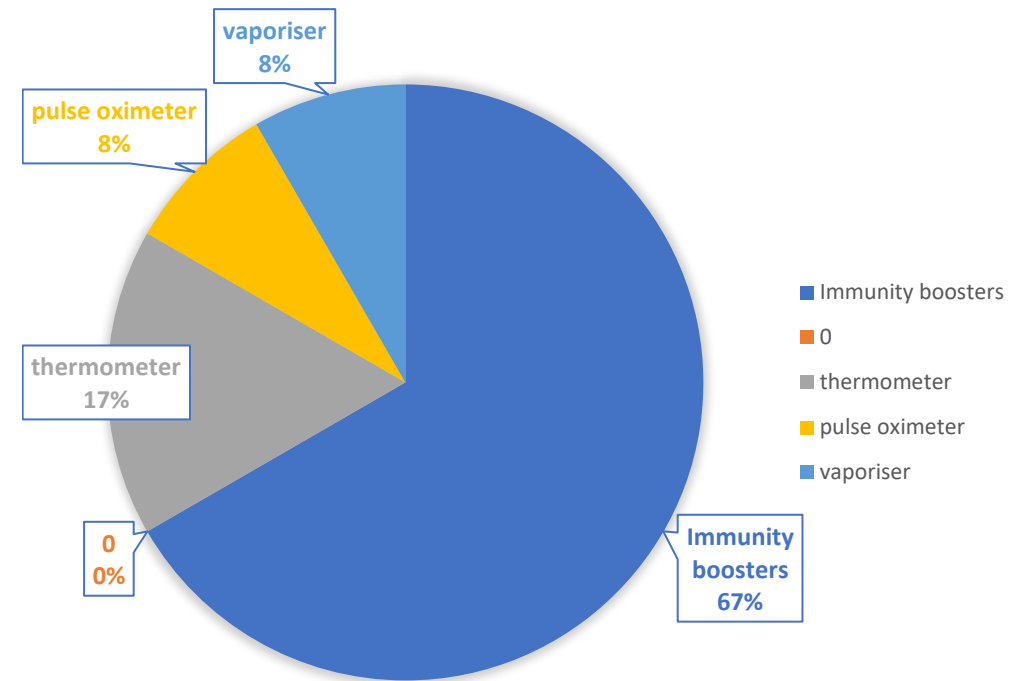
Major devices customer purchased during 2nd wave of covid



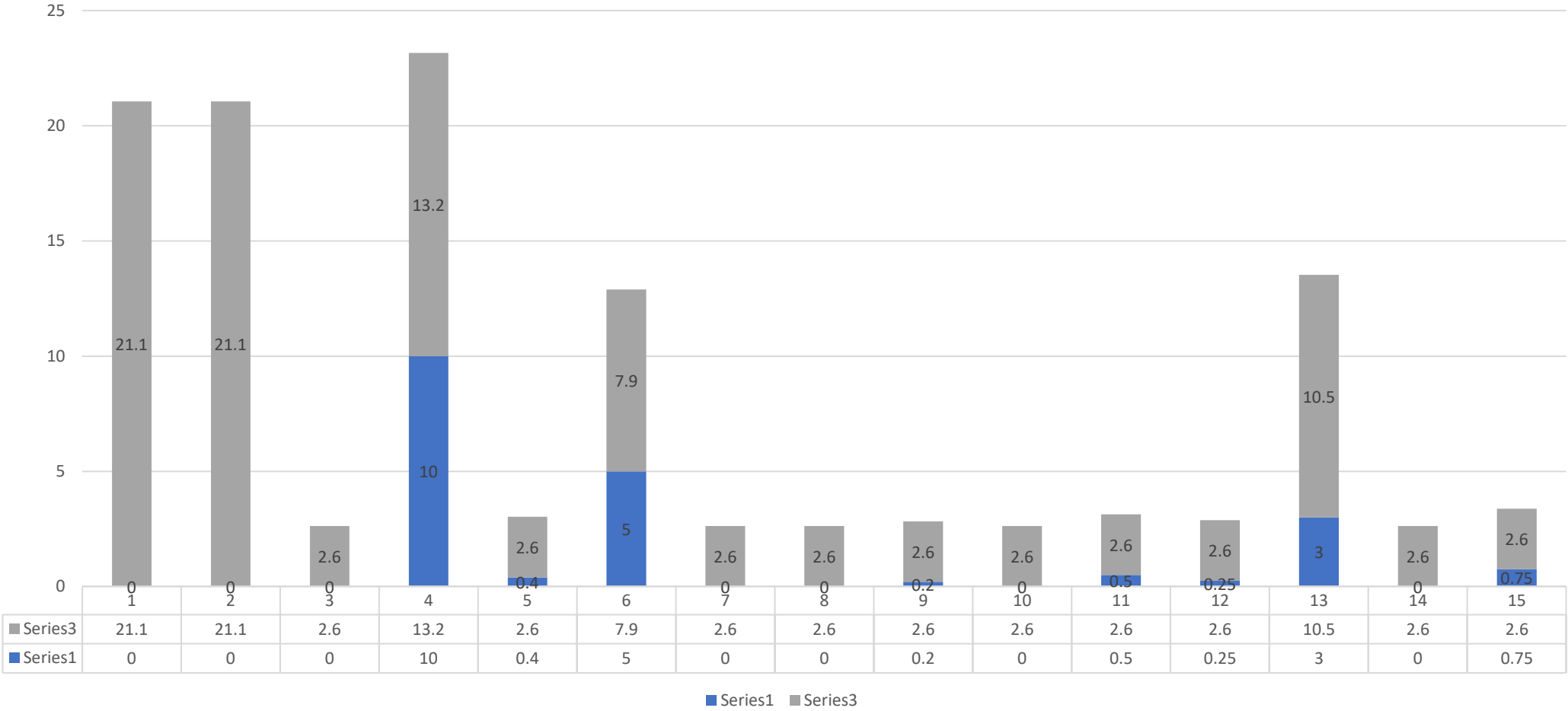
Major devices customer purchased during 3rd wave of covid



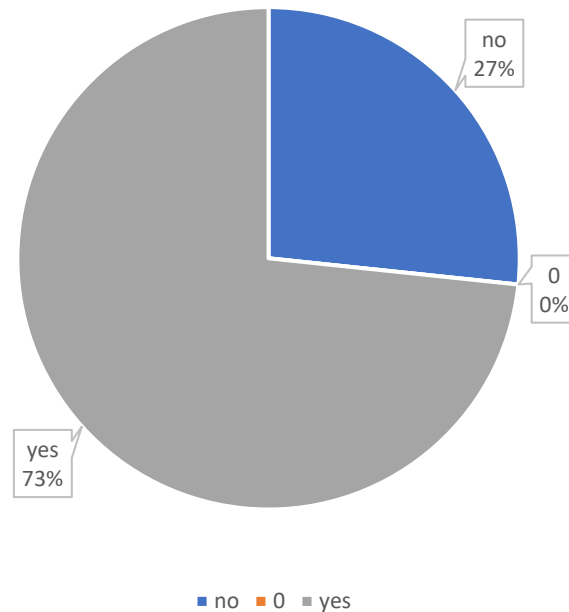
- As data taken by retail pharmacies shows that 67% customer purchased Immunity boosters for their better health during 3rd wave covid pandemic followed by 17% Thermometer & 8 % by Pulse oximeter & Vaporiser respectively.



The sale increment during covid waves



were retail pharmacies able to manage the supplies



This above pie graph shows the supplies managed by retail pharmacies.

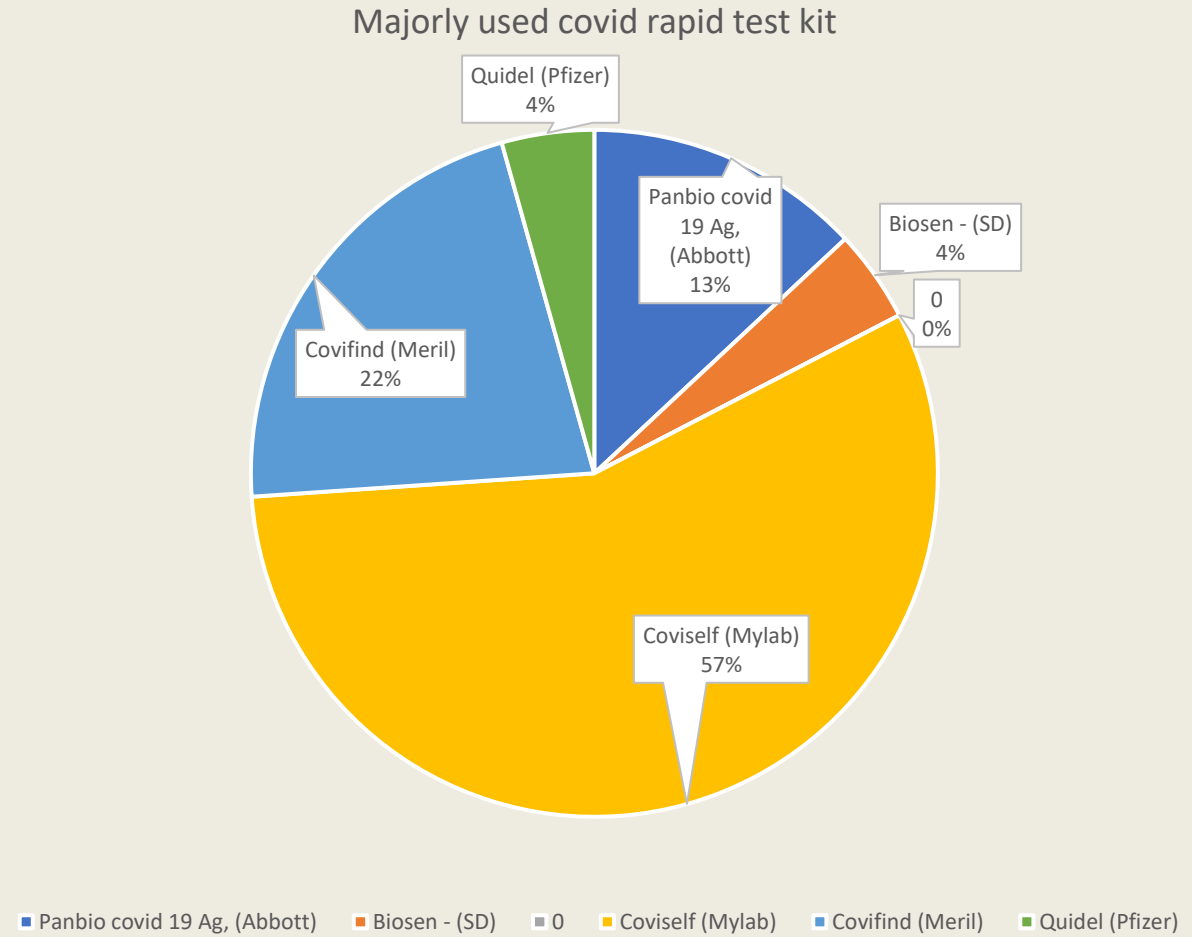
Out of 30 retail pharmacies, 73% pharmacies were able to manage the supply gaps during covid pandemic, & 27% pharmacies were not able to supply gaps.

Out of these 73% pharmacies who were able to manage the supplies, 3 pharmacies were the Apollo pharmacy sampled randomly had supply managed by the company itself.

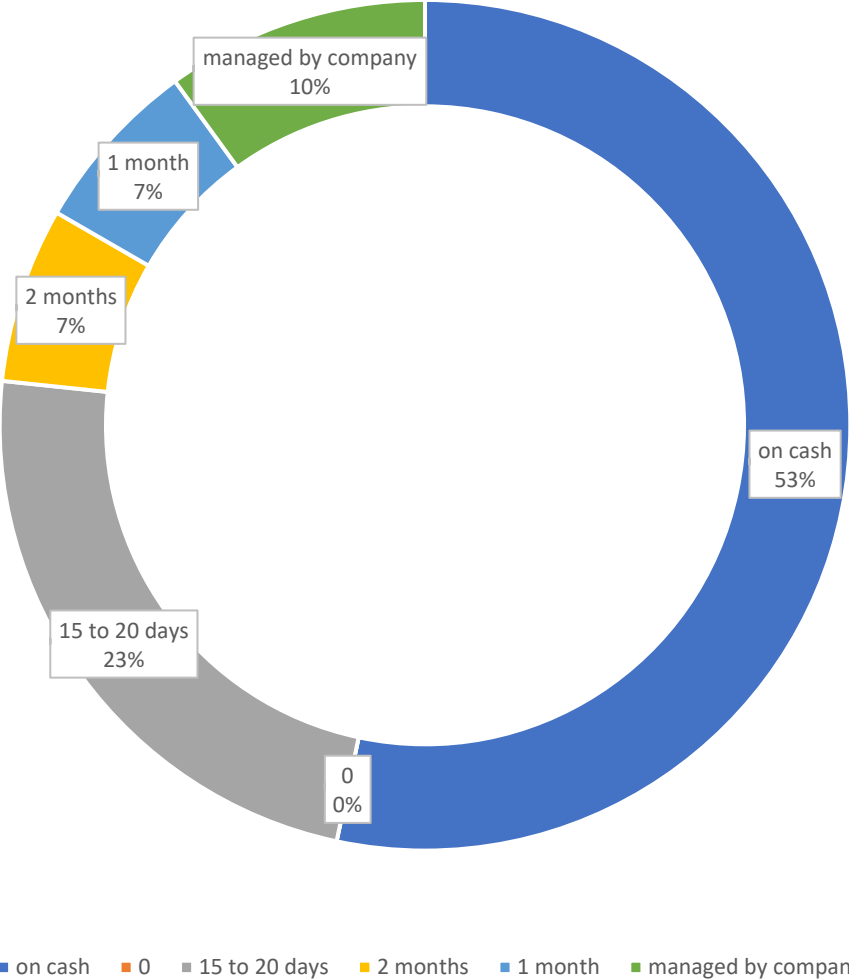
Other retail pharmacies clarified that during covid pandemic they were bringing the supplies on cash wherever it was available by themselves.

Medical device	Average price/unit (Rs)
Thermometer	170.86
vaporiser	314.83
Pulse oximeter	1270.83
glucometer	897.83
gloves	19.17
masks	9.40
sanitizer	159.62
covid rapid test kit	229.33
small oxygen concentrators	51666.67
oxygen can	525.00
BP monitor	1343.75
Spirometer	339.29
Total	100.00%

- This above graph show that the highest selling rapid test kit was coviself (Mylab) which covered around 57% of surveyed market of Jaipur region.
- And Quidel (Pfizer) was minimal selling rapid test kit.



Distribution network time allowed retail pharmaceis to pay their remaining bills



conclusions

- This study performed at 30 retail pharmacies of Jaipur states about the need, increments, supply gaps, and demand of medical devices which got results about the majorly sold devices in second wave of covid, majorly sold devices in third wave of covid, sales increments, supply gaps, specially about rapid test kit, & distribution network.
- In second wave of covid Vaporiser is found to be highly sold at 16.20%.
- In third wave of covid, Vaporizer, Pulse oximeter, & Nebulizer are found to be highly sold at 15.8% respectively.
- During third wave of covid, 67% customer purchased Immunity Boosters.
- Maximum of 1000% sales increment was found there at retail pharmacies for 21%.
- 73% of retail pharmacies were able to manage the supply gaps, & 27% pharmacies were not able to manage the supply gaps & took average of 2 months to fulfill their supply gaps.
- The highest selling price hold by Oxygen Concentrator having average of Rs. 51,666.
- In the Jaipur region, Coviself (Mylab) was the highest selling Covid rapid test kit had the market share of 57%.
- 53% of distribution was on cash, followed by 23% for 15 to 20 days, 7-7% for 1 and 2 months respectively & 10% managed by the company for the Apollo Pharmacies.

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