

Lagos State Hospital Report

Objectives

Generate a csv or Google Sheet of all the primary, secondary and tertiary tier hospitals in Lagos.
Data Source: <https://hfr.health.gov.ng/facilities/hospitals-list?page=1356>

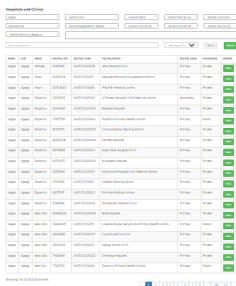
- Fields: Name, Type, Location/Address, Tier, Start Date, Ownership, Facility ID
- Helpful Python Tools: Scrapy, BeautifulSoup, requests

Load the data into PowerBI and generate insights into:

- Private/Govt Hospitals
- Average time in business
- Breakdown of Primary/Secondary/Tertiary
- Breakdown by Local Govt. Area

Web-scraping Process

This website contains all the health centers in Nigeria. Using filter, I searched for the hospitals in Lagos. it contained 220 pages with 10 rows in each page. Initially, I was going to use beautiful soup and requests, but after proper viewing of the html code of the website, I realized all the information are stored inside the open button tag. I decided to use selenium which uses drivers and get.attribute() method to get information from the tag. I extracted 2420 rows and 27 columns. I used pandas to store the data into a dataframe to be in a readable format, and then exported to csv



Name	Type	Location	Tier	Start Date	Ownership	Facility ID
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	1
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	2
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	3
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	4
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	5
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	6
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	7
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	8
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	9
Abimbola Oluwalanle	Primary	Abimbola Oluwalanle	Primary	2015-01-01	Private	10

figure 1.1 - the website where the data was extracted

```
// put your #install drivers to access the website
driver = webdriver.Chrome(ChromeDriverManager().install())

#create an empty table to insert the data
hospital = []

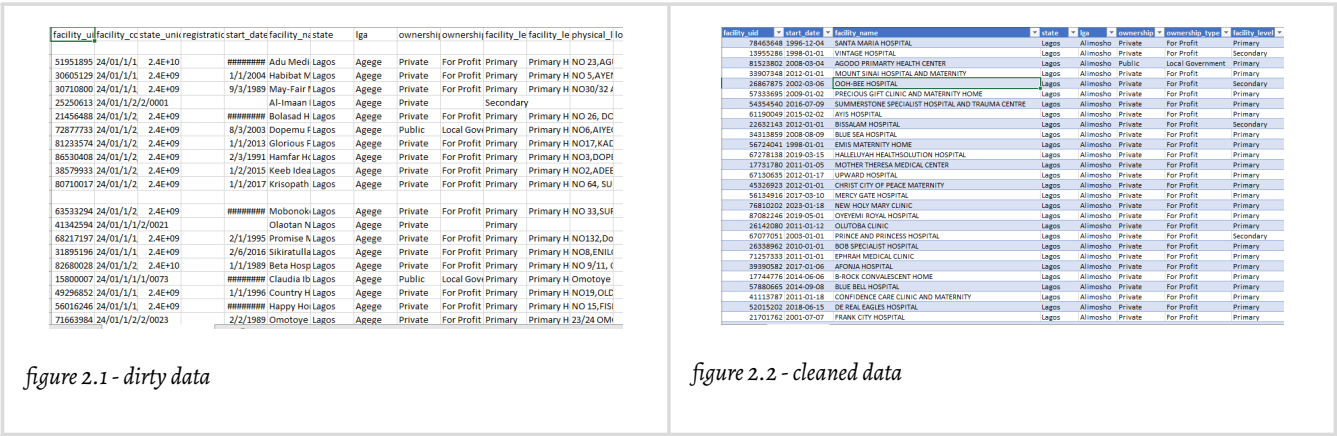
#using for loop to automate the extraction of data
for link in range(1, 221):
    #get into url of each page
    url = 'https://hfr.health.gov.ng/facilities/hospitals-search?
    driver.get(url)
    #get into the button tag to extract the data
    elements = driver.find_elements(By.CLASS_NAME, 'btn.btn-success.btn-sm')
```

figure 1.2 - code snippet for the extraction with selenium

Cleaning Process

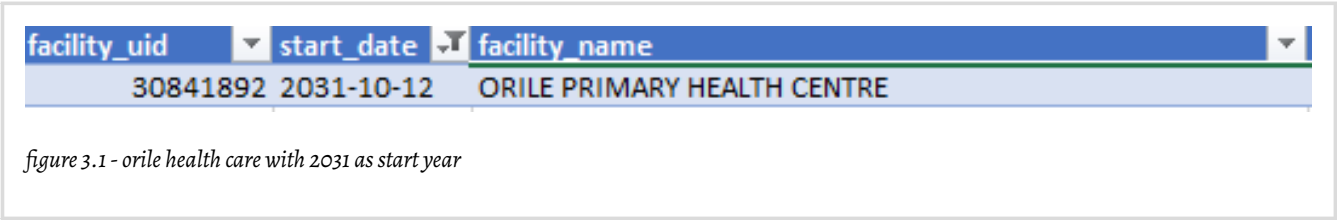
After cleaning, there is 1552 rows and 15 columns. In this process, I removed 220 null rows, and 648 rows that has null start_date. I removed some irrelevant columns that wont be useful for analysis or for reference due to their multiple null values. I did not remove columns like phone_number and address, though they have multiple null rows, but they can be used for reference. Currently the phone_number and the

physical_location columns have 210 and 213 null rows respectively. I also change the wrong datatype to the correct datatype. The dataset is both in the excel format and csv format

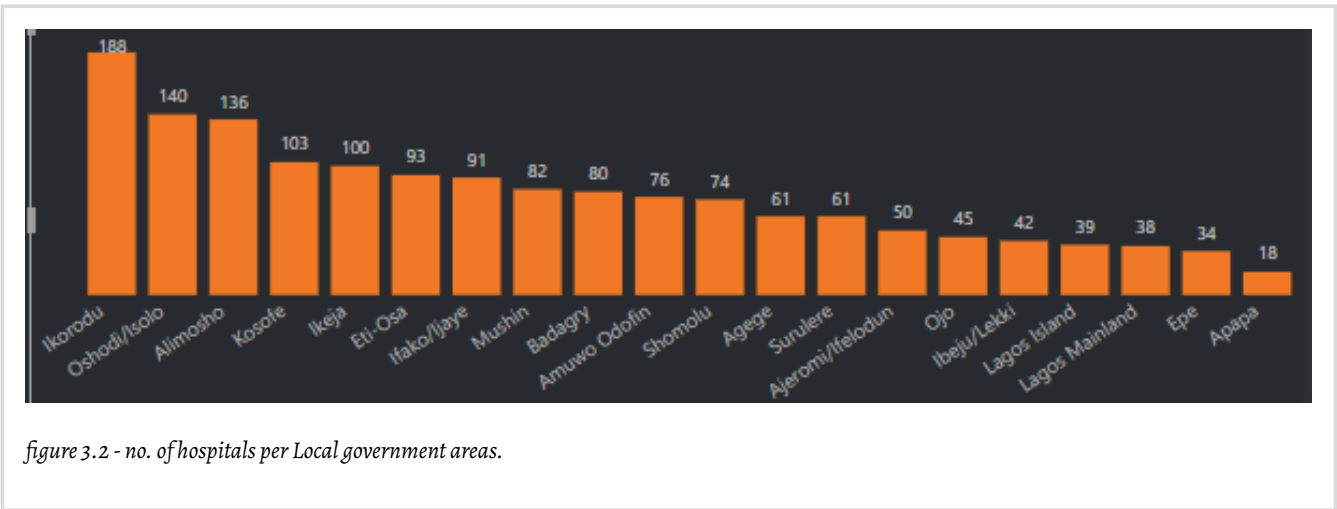


Analysis and Visualization Process

During analysis, I discovered “Orile primary Health Center” start year was 2031, and after searching the internet and could not find the original start year, i removed that data from the data set, making it 1551 hospital used for analysis.



These hospitals are distributed among 20 Local Government Areas, with Ikorodu LGA having the highest number of 188 hospitals, and Apapa LGA having the lowest number of 18 hospitals.



There are more private hospitals than public in Lagos. Private ownership have 81.18% of hospitals, where 1243 is For profit and 27 is Non-profit. The Public ownership which has 18.12% of hospitals in Lagos, is divided into 4 types, which are; Local government, State government, Federal government, and Military & paramilitary, with 215, 49, 10, 7 hospitals respectively.

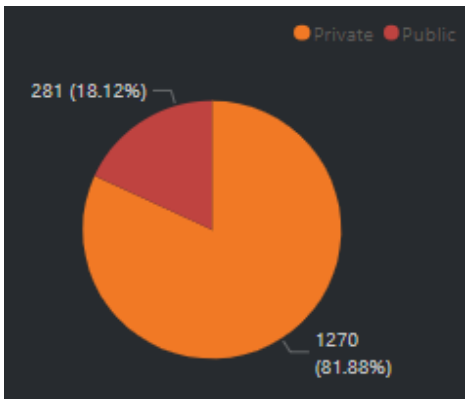


figure 3.3 - no. of hospitals per ownership .

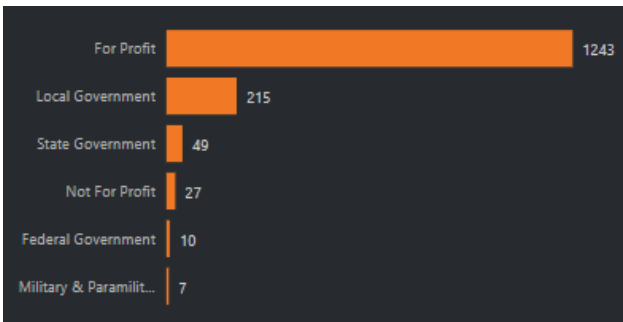


figure 3.4 - no. of hospitals per ownership type.

Health cares are described as different levels of care: primary, secondary, tertiary, and quaternary. Lagos state health care only have 3 levels, which are primary, secondary, and tertiary. The primary care is when one consult with a primary care provider. Secondary care is when one sees a specialist such as an oncologist or endocrinologist. Tertiary care refers to specialized care in a hospital setting such as dialysis or heart surgery. The primary health care has higher percentage than every other heath care level in Lagos. The primary care is 1,100 while the secondary and tertiary are 445 and 6 hospitals respectively

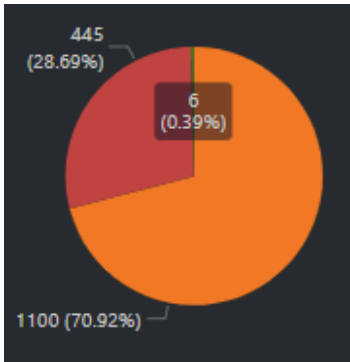


figure 3.4 - no. of hospitals per level.

The oldest hospital which was established in 1945 was a federal hospital and at the tertiary level, named National hospital of orthopedics. As at 2023, between Jan and march, 10 hospitals has been established, registered and licensed. The highest number of hospitals started in 2012, with 75 hospitals

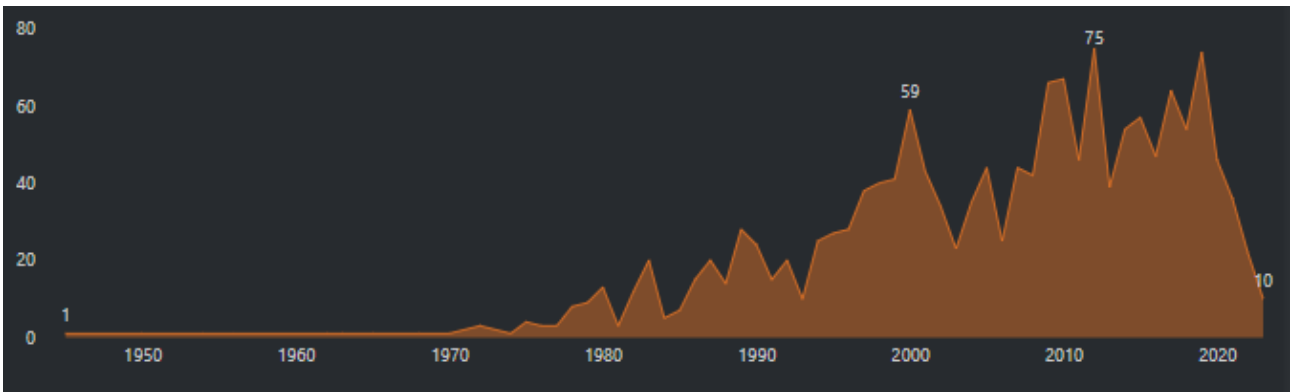


figure 3.4 - no. of hospitals per their start year.

There are 1,421 licensed hospital and 11 unlicensed hospital, where there are 1416 registered hospital, 14 pending registration, 9 provisional registered and 1 registration pending. Both status have an unknown status. There is also a "Not Applicable" category in both registration and licensed, and these hospital are public hospitals in the state, LGA, and federal ownership type, and the start dates of these hospitals range from 2000 to 2023.

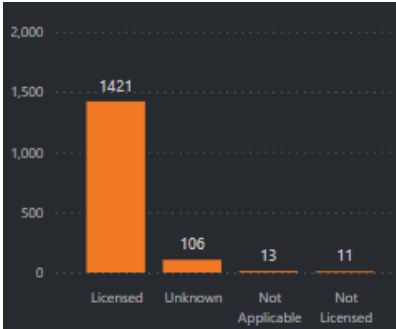


figure 3.5 - no. of hospitals per licensed status.

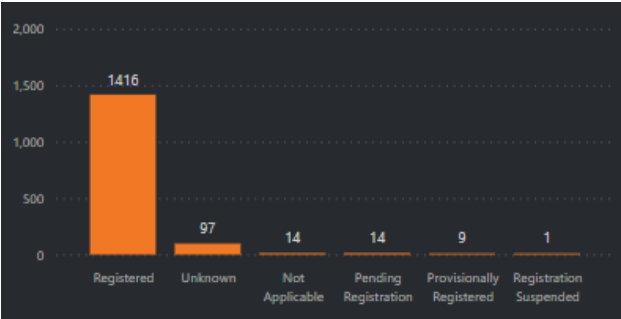


figure 3.6 - no. of hospitals per registration status.