

# Data overview

We are a team of analysts hired to analyze the resource requirements of Covid-19 patients on life support in Kenya in the last quarter of the year 2020.



**We need...**

**Summary statistics** to help us understand the distributions per month, per resource type, and per gender.



**The dataset**

COVID-19 patients on life support in Kenya in the **last quarter of 2020**.

The dataset is from **openAFRICA**.

# Data overview

The distribution of Covid-19 patients on the life support dataset contains 126 rows and the following columns:

## A. Date and Month

The date and month of the observation.

## B. Supplementary Oxygen

The number of patients who required supplementary oxygen resources.

## C. Ventilatory Support

The number of patients who required ventilatory support resources.

## D. New Covid-19 cases

The number of new Covid-19 cases recorded on that observation day.



## The dataset

	A	B	C	D	E
1	Date	Month	Supplementary Oxygen	Ventilatory Support	New Covid-19 cases
2	10/18/2020	October			616
3	10/19/2020	October	39		685
4	10/20/2020	October	41		195
5	10/21/2020	October	41	27	571
6	10/22/2020	October	45	27	497
7	10/23/2020	October	59		1068
8	10/24/2020	October	62		631
9	10/26/2020	October	52		931
10	10/29/2020	October	40	18	1018
11	10/30/2020	October	60	26	761
12	11/01/2020	November	68	31	1395
13	11/02/2020	November	83	26	685
14	11/03/2020	November	107	25	724
15	11/04/2020	November	122	25	492
16	11/05/2020	November	118	26	1494
17	11/06/2020	November	116	27	1008
18	11/08/2020	November	102	23	1065
19	11/09/2020	November	123	21	719
20	11/10/2020	November	117	22	756
21	11/11/2020	November	120	18	1344
22	11/12/2020	November	124	20	1216
23	11/14/2020	November	120	23	1470
24	11/15/2020	November	126	26	1080
25	11/16/2020	November	130	27	972
26	11/17/2020	November	124	26	559
27	11/18/2020	November	115	27	925

# Consider the questions we want to investigate



Distribution of **Covid-19 patients** on life support in **Kenya**

**How many** patients required supplementary oxygen **per month per gender group?**

**How many** patients required ventilatory support **per month per gender group?**

**How many** new Covid-19 cases were recorded **per month per gender group?**

# What is a pivot table?

A tool that transforms data to highlight comparisons, patterns, and trends.

01.

Summarizes data by pivoting **rows to columns or columns to rows**.

02.

**Expands** and **collapses** levels of data to focus and drill down to important details.

03.

Allows for easier **subtotaling** and aggregation of numeric data.

04.

Creates **categories** and **subcategories** of the data to create custom formulas and calculations.

05.

Focuses on useful and intriguing subsets of data by **filtering, sorting, grouping, and conditional formatting** the data.

06.

Allows for easier **querying of large amounts of data** in a more user-friendly way.

# What is a pivot table?

Here is an example of a pivot table.

A	B	C	D	E
Date	Month	Supplementary Oxygen	Ventilatory Support	New Covid-19 cases
10/18/2020	October			616
10/19/2020	October	39		685
10/20/2020	October	41		195
10/21/2020	October	41	27	571
10/22/2020	October	45	27	497
10/23/2020	October	59		1068
10/24/2020	October	62		631
10/26/2020	October	52		931
10/29/2020	October	40	18	1018
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11/01/2020	November	68	31	1395
11/02/2020	November	83	26	685
11/03/2020	November	107	25	724
11/04/2020	November	122	25	492
11/05/2020	November	118	26	1494
11/06/2020	November	116	27	1008

**A data table**

Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 cases
December	1966	713	11687
November	2839	706	23916
October	439	98	6973
<b>Grand Total</b>	<b>5244</b>	<b>1517</b>	<b>42576</b>

**A pivot table of the same data**

# What is a pivot table?

## Example

The pivot table in the example provides a summary of the data for each month.

It adds up the values for the columns Supplementary Oxygen, Ventilatory Support, and New Covid-19 Cases to determine the total for each resource category per month.

For columns of interest, we can determine various descriptive statistics, such as the number of entries, average, minimum, and maximum.

	A	B	C	D	E
1	Date	Month	Supplementary Oxygen	Ventilatory Support	New Covid-19 cases
2	10/18/2020	October			616
3	10/19/2020	October	39		685
4	10/20/2020	October	41		195
5	10/21/2020	October	41	27	571
6	10/22/2020	October	45	27	497
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8	10/24/2020	October	62		631
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Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 cases
December	1966	713	11687
November	2839	706	23916
October	439	98	6973
<b>Grand Total</b>	<b>5244</b>	<b>1517</b>	<b>42576</b>

# Elements of a pivot table

There are three main elements when creating a pivot table.

## 01. Rows

The list with unique items that we'd like to group the pivot table by.

## 02. Values

The values to be included in the grouping and how we'd like to summarise them, for example, SUM, COUNT, MIN, MAX, etc.

## 03. Columns

The columns are used to further group the grouped values, i.e., create subcategories.

2							
3		Gender	Values				
4		Female			Male		
5	Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 cases	SUM of Supplier	SUM of Ventilator	SUM of New Covid-19 cases
6	December	1966	713	11687	1896	661	13589
7	November	2839	706	23916	1719	628	9961
8	October	439	98	6973	1033	320	6687
9	Grand Total	5244	1517	42576	4648	1609	30237
10							
11							
12							

# Additional features

## Sorting and ordering

Once a pivot table has been constructed, each **row field** may be used to **sort data**, either in **ascending or descending order**.

For example, we can sort the data by the SUM of the Supplementary Oxygen column.

	Gender	Values			
	Female				Male
Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 cases	SUM of Supplier S	
October	439	98	6973	1033	
December	1966	713	11687	1896	
November	2839	706	23916	1719	
Grand Total	5244	1517	42576	4648	

### Pivot table editor

'distribution-of-covid-19-pat' 

Suggested

Rows

Add

Month

×

Order

Ascen... ▾

Sort by

SUM of... ▾

Fem... ▾



Show totals



# Additional features

## Filtering

In the pivot table, we may choose **which data to include** in the display by using the **filter function**.

For example, we can filter for records where the new Covid-19 cases exceeded 100.

Month	Gender		Values		
	Female		Male		
	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 cases	SUM of Supplern S	
October	439	98	6973	1033	
December	1966	713	11687	1896	
November	2839	706	23916	1719	
Grand Total	5244	1517	42576	4648	

### Pivot table editor

'distribution-of-covid-19-pat' 

Suggested

Rows

Add

Filters

Add

New Covid-19 cases 

Status

Value is greater than 100 

# Additional features

## Multiple categories

As an example, we could group the data according to **both gender and month**, gender being the subcategory under the category of the month.

We can also create **multiple categories** in a pivot table, either **column or row subcategories**.

Subcategory

	Gender	Values				
	Female	Male				
Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19	SUM of Supplen	SUM of Ventilatic	SUM of N
December	835	262	8342	860	256	
November	2593	652	23011	685	209	
October	353	71	6281	719	217	
Grand total	3781	985	37634	2264	682	

Category

# Additional features

## Multiple categories

Creating sub-categories using **Columns**: the sub-categories are created as additional columns in the pivot table

If we add a column under the Columns element, it creates a subcategory, allowing our pivot table to display **all the possible combinations** of the two fields between the columns in the pivot table.

2		Female			Male		
3	Month	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19	SUM of Supplem	SUM of Ventilatr	SUM of
4	December	835	262	8342	860	256	
5	November	2593	652	23011	685	209	
6	October	353	71	6281	719	217	
7	Grand Total	3781	985	37634	2264	682	

Supplementary  
Oxygen  
Female

Supplementary  
Oxygen  
Male

Pivot table editor

Rows Add

Month ×

Order: Ascen... Sort by: Month

☒ Show totals

Columns Add

Gender ×

Order: Ascen... Sort by: Gender

☒ Show totals

Column  
subcategory

# Additional features

## Multiple categories

Creating sub-categories using **Rows**: the sub-categories are created as additional rows in the pivot table

COVID-19-patients-on-extra-support-in-kenya-october-november-december-2021 ☆ 📁 📈

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Month	Gender	SUM of Supplementary Oxygen	SUM of Ventilatory Support
December	Female	1966	713
	Male	1896	661
December Total		3862	1374
November	Female	2839	706
	Male	1719	628
November Total		4558	1334
October	Female	439	98
	Male	1033	320
October Total		1472	418
Grand Total		9892	3126

Pivot table editor

Rows Add

Month ✕

Order: Ascen... ▾ Sort by: Month ▾

☒ Show totals

☐ Repeat row labels

Gender ✕

Order: Ascen... ▾ Sort by: Gender ▾

☒ Show totals

The first row field added in the Rows element **creates a list of the unique items** in that column. When we add a second row field, it creates a subcategory, allowing our pivot table to display **all the possible combinations** of the two fields between the columns in the pivot table.

# Back to the questions we wanted to investigate



Distribution of **Covid-19** patients on life support in **Kenya**

**How many** patients required supplementary oxygen **per month per gender group?**

**How many** patients required ventilatory support **per month per gender group?**

**How many** new Covid-19 cases were recorded **per month per gender group?**

With just a few clicks and no formula, we can answer the above questions and more!

Month	Gender	SUM of Supplementary Oxygen	SUM of Ventilatory Support	SUM of New Covid-19 Cases
December	Female	1966	713	11687
	Male	1896	661	13589
	December Total	3862	1374	25276
November	Female	2839	706	23916
	Male	1719	628	9961
	November Total	4558	1334	33877
October	Female	439	98	6973
	Male	1033	320	6687