# DATA VISUALIZATION AND STORY TELLING

## FINAL PROJECT

**PRANAY DATTA KAVUKUNTLA**

## INTRODUCTION:

The project's overarching goal is to improve healthcare communication by creating, deploying, and assessing data visualizations tailored to various healthcare audience groups inside the United States. In order to help a hospital in the US make an educated decision about vaccinations, this project will use vaccination statistics, namely from the CDC's VAERS dataset. The ever-changing science of immunology is greatly affected by the quick progress in vaccine research, making this even more important. Data analysts, members of the general public, healthcare professionals, and hospital administration are the intended recipients of these visual representations. The goal is to help these different groups comprehend and adapt to the constantly changing medical landscape by giving them a complete picture of immunization trends and what they mean for the healthcare business. If healthcare institutions in the US want to be better prepared to deal with new health problems as they arise, they must adopt this strategy and base their decisions on reliable data.

NOTE: TO ACCESS MY DASHBOARD PLEASE GO THROUGHT THIS LINK:
https://drive.google.com/file/d/1ERy4Rg1tTADrccJVPrEIZmeHd8T8j4Pq/view?usp=sharing

## BACKGROUND AND AUDIENCE ANALYSIS

**Research Question/Problem**: Finding the optimal way to modify vaccination policy utilizing complex data from the CDC's VAERS is the primary goal of this study. Important characteristics including vaccine types, ages, genders, reported incidents, and risk percentages are included in this dataset. Based on my analysis, I can say with confidence that the data we have is extensive enough to answer our research question and reach all of our target audiences with an understandable and useful message.

**Audience Analysis**:

- **Hospital Management**: Strategic planning and policy decisions are informed by the data sought by this organization. Without becoming mired down in unnecessary detail, they require a high-level summary that emphasizes key lessons.
- **Healthcare Workers**: They need data that can be immediately put to use in caring for patients and that is both practical and actionable. Data should be brief, easy to understand, and focused on the patient.
- **Lay Public**: The material should be presented in a way that is easy for this audience to understand, without using technical terms, and relevant to their daily life. A focus on understandability and applicability to common health issues is key.
- **Analysts**: Their expectation is detailed, in-depth investigation of the data. This team excels at sifting through massive datasets in search of minute trends and patterns.

**Overall Message Variation**:

- There has been no change to the primary message regarding the significance of an educated vaccination policy. Nevertheless, the level of detail, complexity, and presentation style will differ to cater to the knowledge and comprehension of each audience.

**Familiarity with Issue and Diversity Considerations**:

- The level of information that each of these categories have regarding medical phrases and facts is significantly different from an individual to another. Analysts and hospital administration, for instance, are likely to have a greater understanding of the technical aspects than the general public and healthcare workers.

- A number of elements, including age, cultural diversity, primary language, and educational level, have been taken into consideration when designing the visualizations to ensure that they are easily accessible and can be understood by all groups.

**Tools and Platforms**:

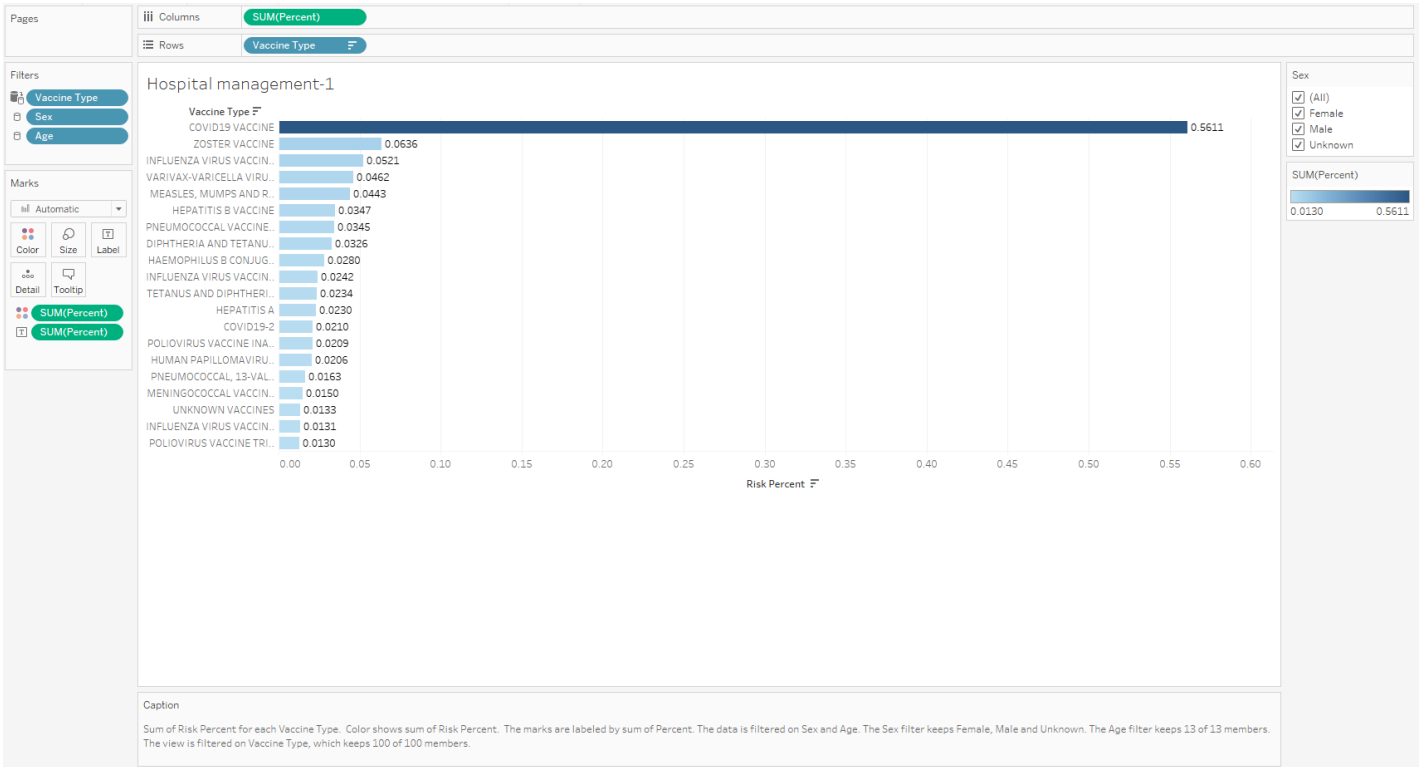
- **Tableau and QlikView**: The strong data visualization capabilities of these advanced tools make them ideal for both in-depth study and broad overviews.
- **PowerPoint**: Perfect for management-level presentations that include graphics into a polished style.
- Considering the different levels of contact between healthcare workers and analysts with data, one of the anticipated enhancements is user-friendly interfaces for interactive features.

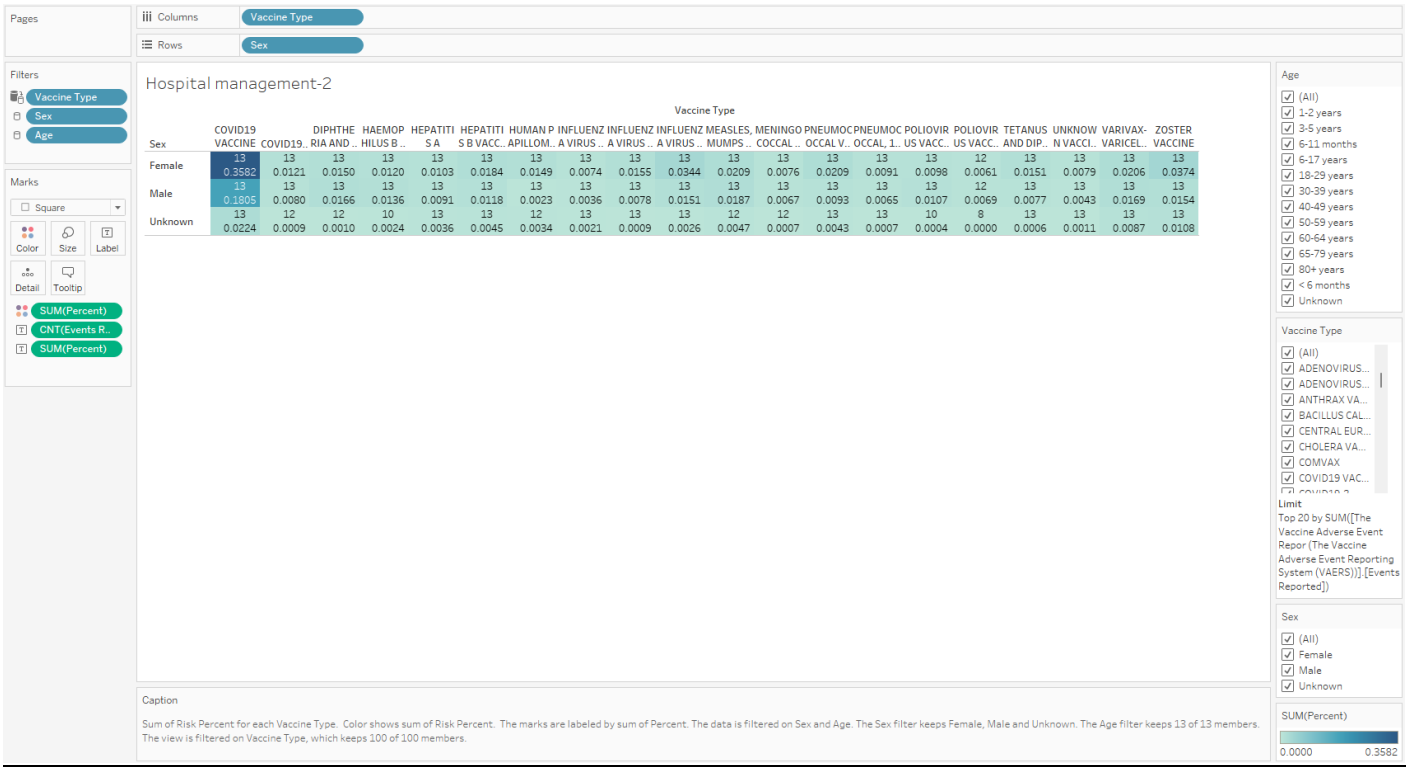
## DATA VISUALIZATION STRATEGY

**Platform/Media Selection**:

- **Hospital Management**: integrated with Tableau and QlikView visualizations, are chosen for their ability to convey strategic insights in a digestible format.
- **Healthcare Workers**: Interactive Tableau dashboards are selected to provide real-time, actionable data.
- **Lay Public**: Tableau is used to create simplified infographics and charts that are easy to understand.
- **Analysts**: Advanced Tableau dashboards are designed for an in-depth exploration of data.

## HOSPITAL MANAGEMENT:




Pages
Columns
Vaccine Type
Rows
Sex
Filters
Vaccine Type
Sex
Age
Marks
Square
Color
Size
Label
Detail
Tooltip
SUM(Percent)
CNT(Events R..
SUM(Percent)
Hospital management-2
Vaccine Type
Sex
COVID19 VACCINE
COVID19..
DIPHTHERIA AND ..
HAEMOPHILUS B ..
HEPATITIS A
HEPATITIS B VACC..
HUMAN PAPILLOM..
INFLUENZA VIRUS ..
INFLUENZA VIRUS ..
INFLUENZA VIRUS ..
MEASLES, MUMPS ..
MENINGOCOCCAL ..
PNEUMOCOCCAL V..
PNEUMOCOCCAL, 1..
POLIOVIRUS VACC..
POLIOVIRUS VACC..
TETANUS AND DIP..
UNKNOWN VACCI..
VARIVAX-VARICEL..
ZOSTER VACCINE
Female
13 0.3582
13 0.0121
13 0.0150
13 0.0120
13 0.0103
13 0.0184
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13 0.0074
13 0.0155
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13 0.0209
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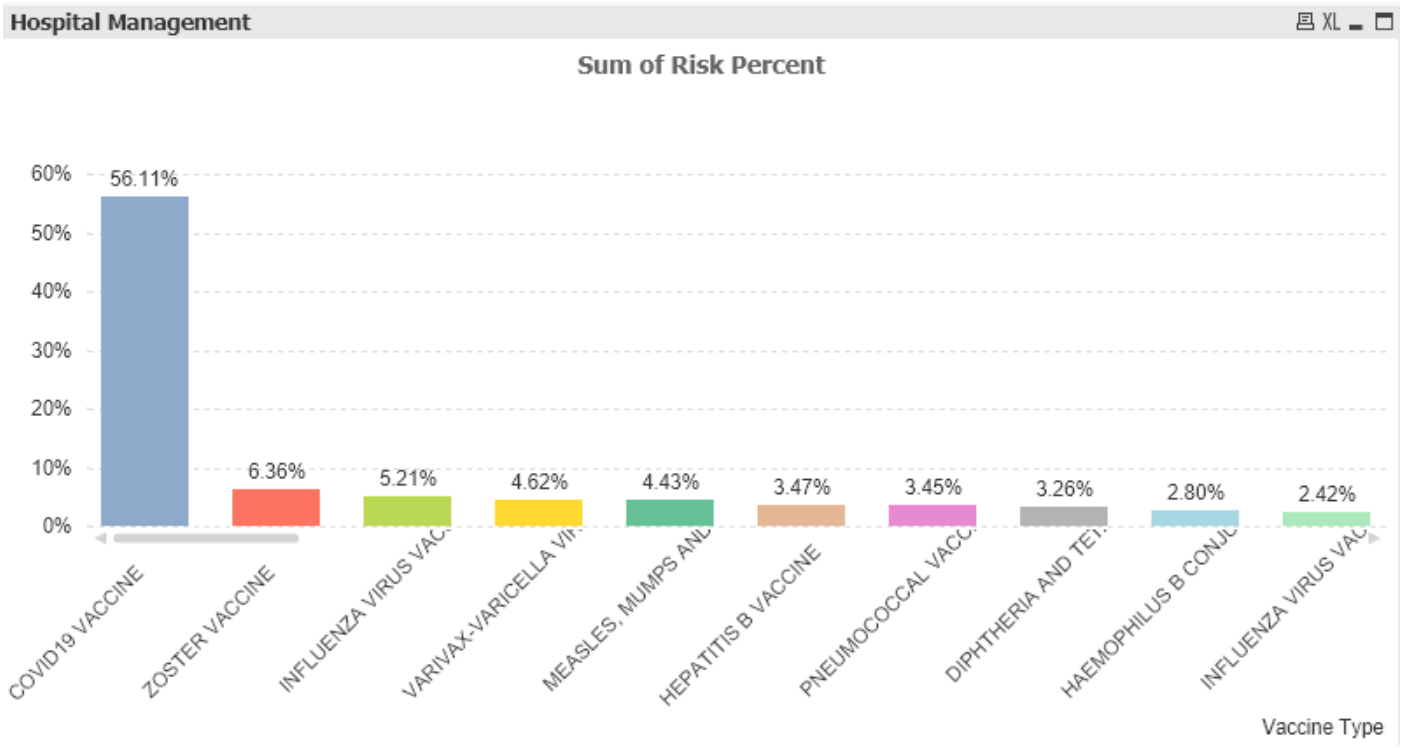
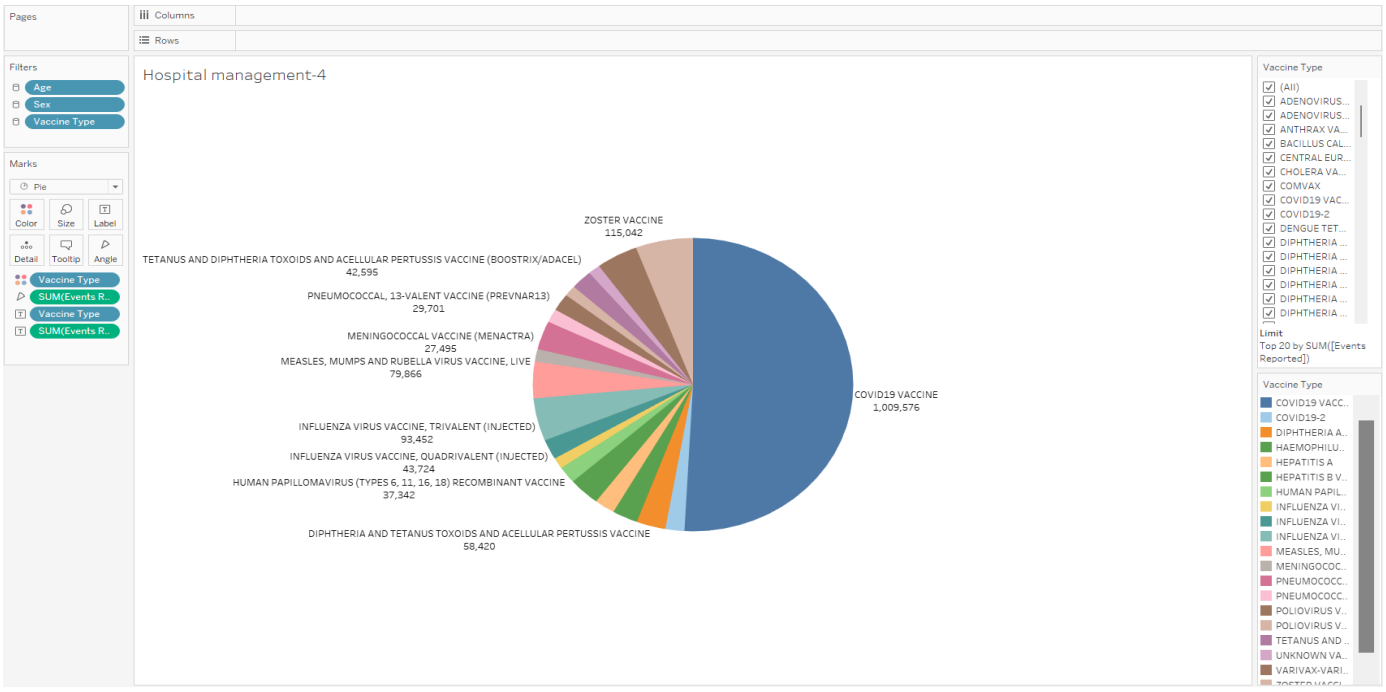
13 0.0151
13 0.0079
13 0.0206
13 0.0374
Male
13 0.1805
13 0.0080
13 0.0166
13 0.0136
13 0.0091
13 0.0118
13 0.0023
13 0.0036
13 0.0078
13 0.0151
13 0.0187
13 0.0067
13 0.0093
13 0.0065
13 0.0107
12 0.0069
13 0.0077
13 0.0043
13 0.0169
13 0.0154
Unknown
13 0.0224
12 0.0009
12 0.0010
10 0.0024
13 0.0036
13 0.0045
12 0.0034
13 0.0021
13 0.0009
13 0.0026
12 0.0047
12 0.0007
13 0.0043
13 0.0007
13 0.0004
10 0.0000
8 0.0000
13 0.0006
13 0.0011
13 0.0087
13 0.0108
Caption
Sum of Risk Percent for each Vaccine Type. Color shows sum of Risk Percent. The marks are labeled by sum of Percent. The data is filtered on Sex and Age. The Sex filter keeps Female, Male and Unknown. The Age filter keeps 13 of 13 members. The view is filtered on Vaccine Type, which keeps 100 of 100 members.
Age
(All)
1-2 years
3-5 years
6-11 months
6-17 years
18-29 years
30-39 years
40-49 years
50-59 years
60-64 years
65-79 years
80+ years
< 6 months
Unknown
Vaccine Type
(All)
ADENOVIRUS...
ADENOVIRUS...
ANTHRAX VA...
BACILLUS CAL...
CENTRAL EUR...
CHOLERA VA...
COMVAX
COVID19 VAC...
Limit
Top 20 by SUM([The Vaccine Adverse Event Repor (The Vaccine Adverse Event Reporting System (VAERS))].[Events Reported])
Sex
(All)
Female
Male
Unknown
SUM(Percent)
0.0000
0.3582

QlikView:


Hospital Management
XL
Sum of Risk Percent
60%
50%
40%
30%
20%
10%
0%
56.11%
6.36%
5.21%
4.62%
4.43%
3.47%
3.45%
3.26%
2.80%
2.42%
COVID19 VACCINE
ZOSTER VACCINE
INFLUENZA VIRUS VAC..
VARIVAX-VARICELLA VI..
MEASLES, MUMPS ANL..
HEPATITIS B VACCINE
PNEUMOCOCCAL VACC..
DIPHTHERIA AND TE..
HAEMOPHILUS B CONJ..
INFLUENZA VIRUS VAC..
Vaccine Type


Pages
Columns
Rows
Filters
Age
Sex
Vaccine Type
Marks
Pie
Color
Size
Label
Detail
Tooltip
Angle
Vaccine Type
SUM(Events R..
Vaccine Type
SUM(Events R..
Hospital management-4
ZOSTER VACCINE
115,042
TETANUS AND DIPHTHERIA TOXOIDS AND ACELLULAR PERTUSSIS VACCINE (BOOSTRIX/ADACEL)
42,595
PNEUMOCOCCAL, 13-VALENT VACCINE (PREVNAR13)
29,701
MENINGOCOCCAL VACCINE (MENACTRA)
27,495
MEASLES, MUMPS AND RUBELLA VIRUS VACCINE, LIVE
79,866
COVID19 VACCINE
1,009,576
INFLUENZA VIRUS VACCINE, TRIVALENT (INJECTED)
93,452
INFLUENZA VIRUS VACCINE, QUADRIVALENT (INJECTED)
43,724
HUMAN PAPILLOMAVIRUS (TYPES 6, 11, 16, 18) RECOMBINANT VACCINE
37,342
DIPHTHERIA AND TETANUS TOXOIDS AND ACELLULAR PERTUSSIS VACCINE
58,420
Vaccine Type
(All)
ADENOVIRUS...
ADENOVIRUS...
ANTHRAX VA...
BACILLUS CAL...
CENTRAL EUR...
CHOLERA VA...
COMVAX
COVID19 VAC...
COVID19-2
DENGUE TET...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
Limit
Top 20 by SUM([Events Reported])
Vaccine Type
COVID19 VACC..
COVID19-2
DIPHTHERIA A..
HAEMOPHILU..
HEPATITIS A
HEPATITIS B V..
HUMAN PAPIL..
INFLUENZA VI..
INFLUENZA VI..
INFLUENZA VI..
MEASLES, MU..
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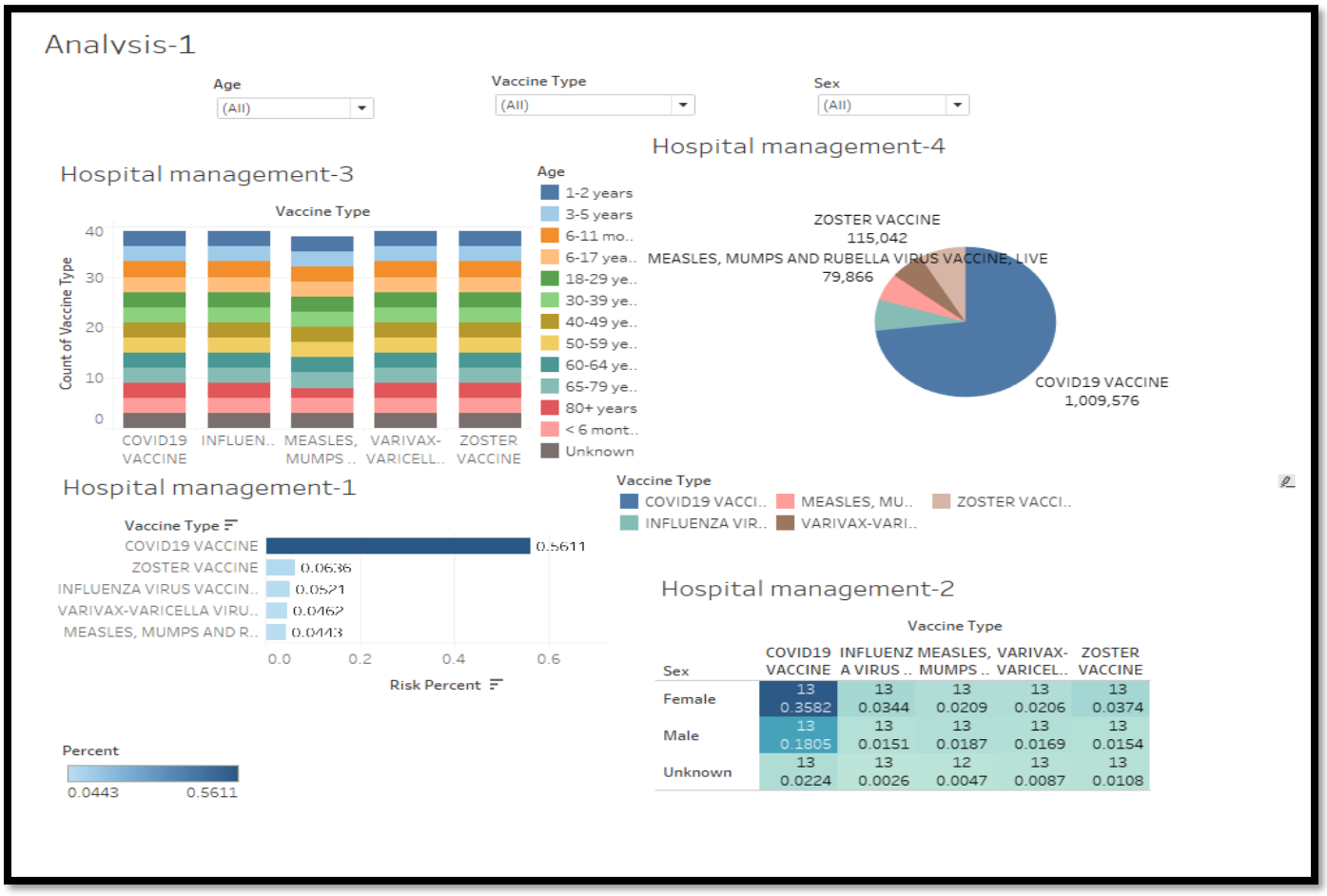
PNEUMOCOCC..
PNEUMOCOCC..
POLIOVIRUS V..
POLIOVIRUS V..
TETANUS AND ..
UNKNOWN VA..
VARIVAX-VARI..

DASHBOARD:


Analysis-1
Age
(All)
Vaccine Type
(All)
Sex
(All)
Hospital management-3
Vaccine Type
Count of Vaccine Type
40
30
20
10
0
COVID19 VACCINE
INFLUEN..
MEASLES, MUMPS ..
VARIVAX-VARICELL..
ZOSTER VACCINE
Age
1-2 years
3-5 years
6-11 mo..
6-17 yea..
18-29 ye..
30-39 ye..
40-49 ye..
50-59 ye..
60-64 ye..
65-79 ye..
80+ years
< 6 mont..
Unknown
Hospital management-4
ZOSTER VACCINE
115,042
MEASLES, MUMPS AND RUBELLA VIRUS VACCINE, LIVE
79,866
COVID19 VACCINE
1,009,576
Hospital management-1
Vaccine Type
COVID19 VACCINE
0.5611
ZOSTER VACCINE
0.0636
INFLUENZA VIRUS VACCIN..
0.0521
VARIVAX-VARICELLA VIRU..
0.0462
MEASLES, MUMPS AND R..
0.0443
0.0
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Risk Percent
Percent
0.0443
0.5611
Vaccine Type
COVID19 VACCI..
MEASLES, MU..
ZOSTER VACCI..
INFLUENZA VIR..
VARIVAX-VARI..
Hospital management-2
Vaccine Type
Sex
COVID19 VACCINE
INFLUENZA VIRUS ..
MEASLES, MUMPS ..
VARIVAX-VARICEL..
ZOSTER VACCINE
Female
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Male
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**Graphics**:

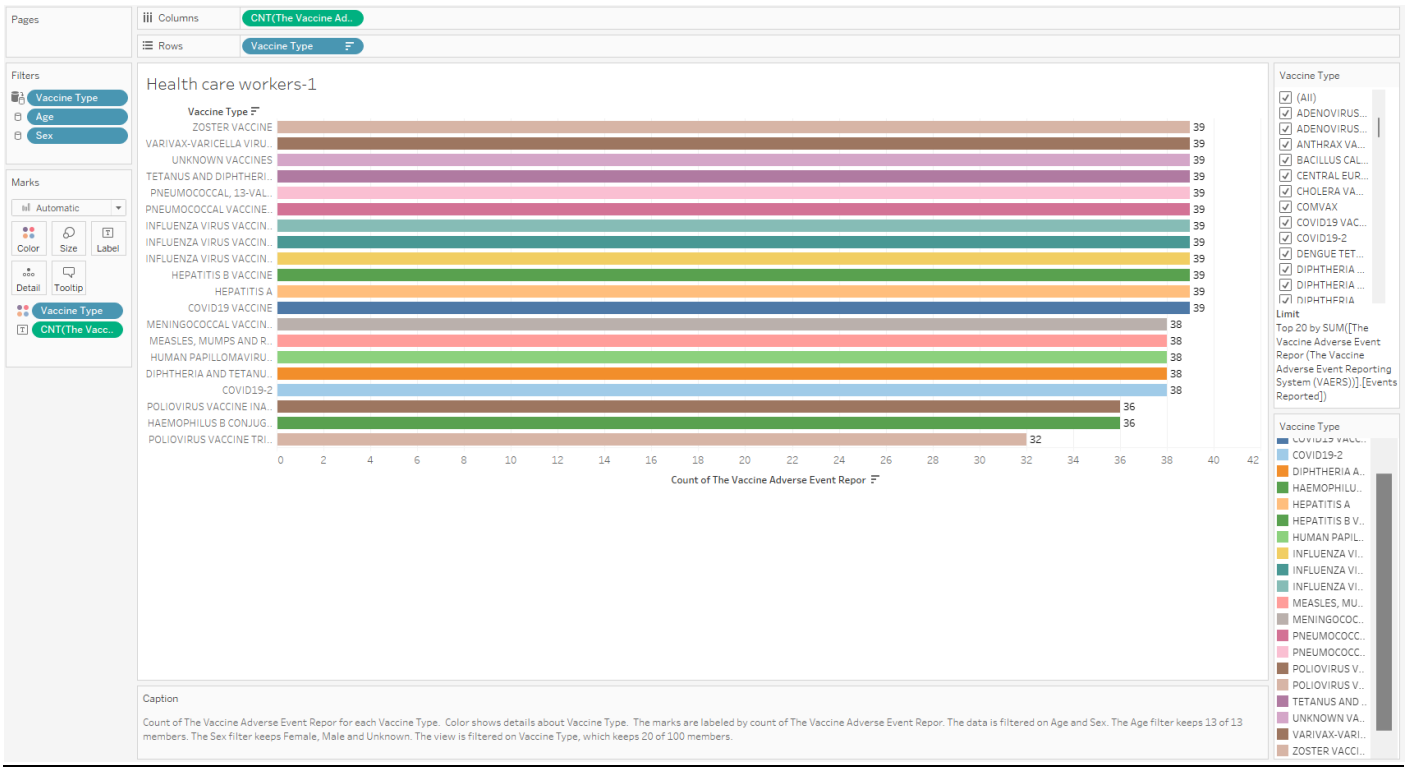
1. **Risk Analysis Bar Chart**: You can see the overall proportion of risk for each vaccine type in this bar chart that runs horizontally. To naturally draw attention to areas that need immediate care, use darker shades for higher threats. With this image as a guide, swift strategic decisions may be taken.

2. **Event Distribution Highlight Table**: I have categorized events in this table based on the type of vaccine and the gender of the participants. We chose this format because it is straightforward and will allow us to swiftly prioritize matters pertaining to vaccines.

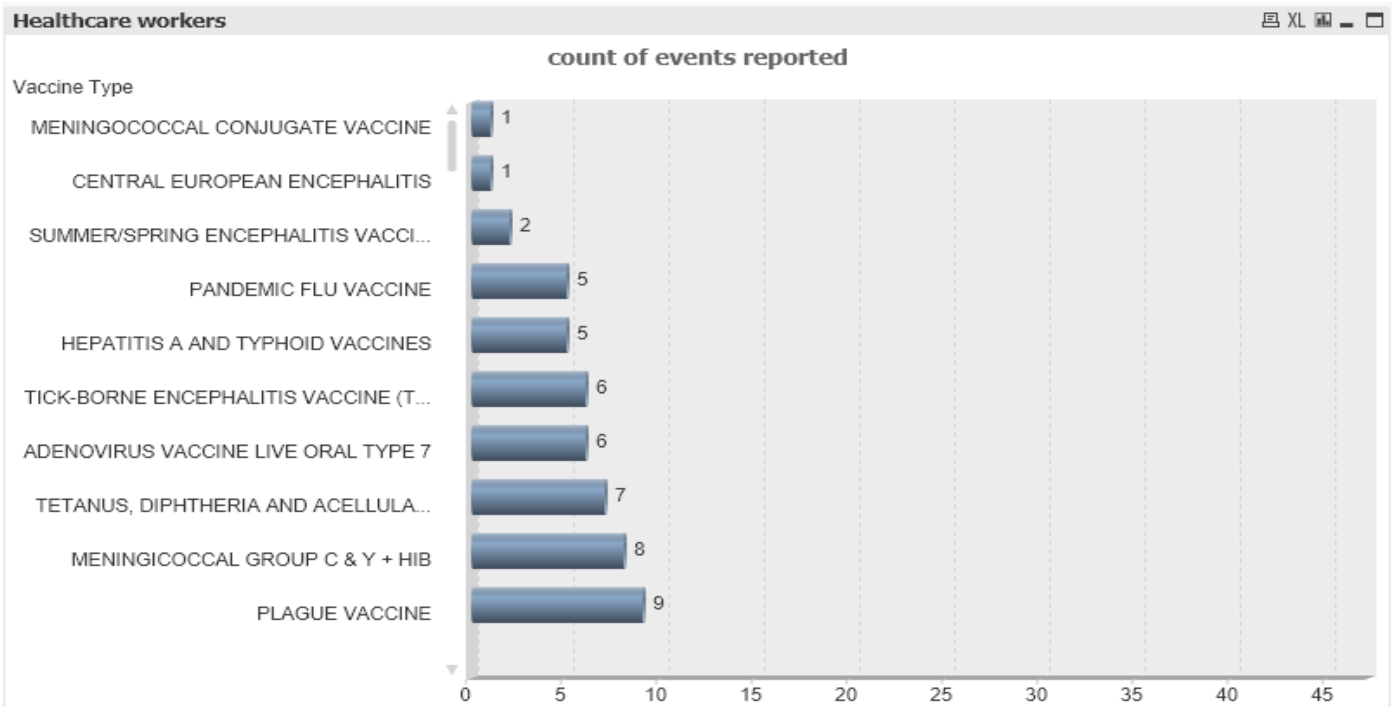
**Message Strategy**: The messaging approach for hospital administration is on providing data-driven insights for future planning and decision-making. Concise summaries highlighting important trends and discoveries in the vaccination data are the focus, with an emphasis on how these findings affect hospital policy and resources. It is critical to display data in a manner that is directly related to operational efficiency and risk management. Prompt, direct language that gets right to the point will help everyone involved understand and act quickly.

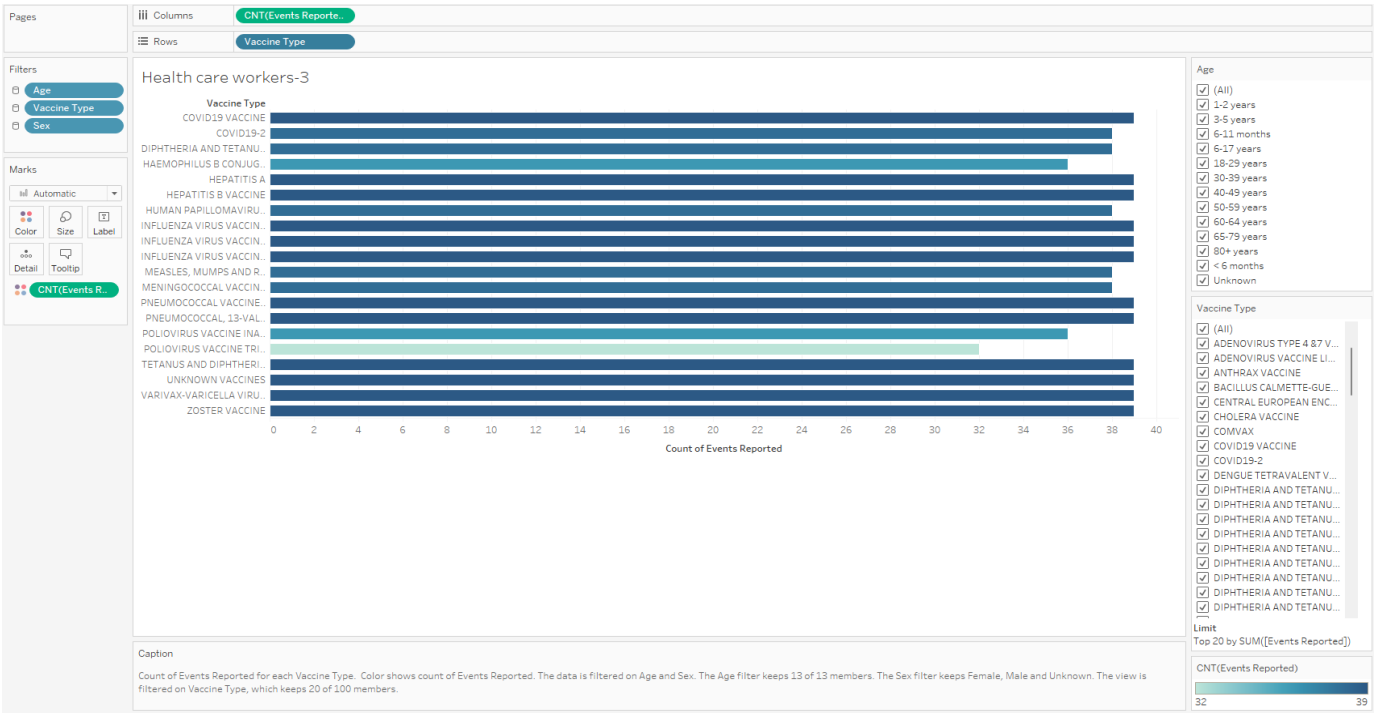
**Reasoning & Description**: Full transparency is essential for top-level management, as my experience with data has taught me. They have a lot on their plates already and don't have time to waste trying to make sense of the jumbled imagery. A horizontal bar chart was my first choice due to its simplicity and straightforwardness. My impression is that the 'Vaccine Type' heading was critical for organizing the data into rows so that comparisons could be made more easily. To give users even more options, I've decided to include filters like "Age" and "Gender" to make it even more specialized. Regions with high "Risk Percent" values stand up clearly.

# HEALTHCARE WORKERS




QlikView:


Healthcare workers
count of events reported
Vaccine Type
MENINGOCOCCAL CONJUGATE VACCINE
CENTRAL EUROPEAN ENCEPHALITIS
SUMMER/SPRING ENCEPHALITIS VACCI...
PANDEMIC FLU VACCINE
HEPATITIS A AND TYPHOID VACCINES
TICK-BORNE ENCEPHALITIS VACCINE (T...
ADENOVIRUS VACCINE LIVE ORAL TYPE 7
TETANUS, DIPHTHERIA AND ACELLULA...
MENINGICOCCAL GROUP C & Y + HIB
PLAGUE VACCINE
1
1
2
5
5
6
6
7
8
9
0 5 10 15 20 25 30 35 40 45


Pages
Columns
CNT(Events Reporte..
Rows
Vaccine Type
Filters
Age
Vaccine Type
Sex
Marks
Automatic
Color
Size
Label
Detail
Tooltip
CNT(Events R..
Health care workers-3
Vaccine Type
COVID19 VACCINE
COVID19-2
DIPHTHERIA AND TETANU..
HAEMOPHILUS B CONJUG..
HEPATITIS A
HEPATITIS B VACCINE
HUMAN PAPILLOMAVIRU..
INFLUENZA VIRUS VACCIN..
INFLUENZA VIRUS VACCIN..
INFLUENZA VIRUS VACCIN..
MEASLES, MUMPS AND R..
MENINGOCOCCAL VACCIN..
PNEUMOCOCCAL VACCINE..
PNEUMOCOCCAL, 13-VAL..
POLIOVIRUS VACCINE INA..
POLIOVIRUS VACCINE TRI..
TETANUS AND DIPHTHERI..
UNKNOWN VACCINES
VARIVAX-VARICELLA VIRU..
ZOSTER VACCINE
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Count of Events Reported
Age
(All)
1-2 years
3-5 years
6-11 months
6-17 years
18-29 years
30-39 years
40-49 years
50-59 years
60-64 years
65-79 years
80+ years
< 6 months
Unknown
Vaccine Type
(All)
ADENOVIRUS TYPE 4 &7 V...
ADENOVIRUS VACCINE LI...
ANTHRAX VACCINE
BACILLUS CALMETTE-GUE...
CENTRAL EUROPEAN ENC...
CHOLERA VACCINE
COMVAX
COVID19 VACCINE
COVID19-2
DENGUE TETRAVALENT V...
DIPHTHERIA AND TETANU...
Limit
Top 20 by SUM([Events Reported])
Caption
Count of Events Reported for each Vaccine Type. Color shows count of Events Reported. The data is filtered on Age and Sex. The Age filter keeps 13 of 13 members. The Sex filter keeps Female, Male and Unknown. The view is filtered on Vaccine Type, which keeps 20 of 100 members.
CNT(Events Reported)
32
39

DASHBOARD:


**Graphics**:

1. **Adverse Event Frequency Bar Chart**: The frequency of adverse effects is used to rank vaccines in this meticulously designed infographic. The vaccines' relative safety profiles should be easily comprehensible to healthcare providers due to its straightforward format.

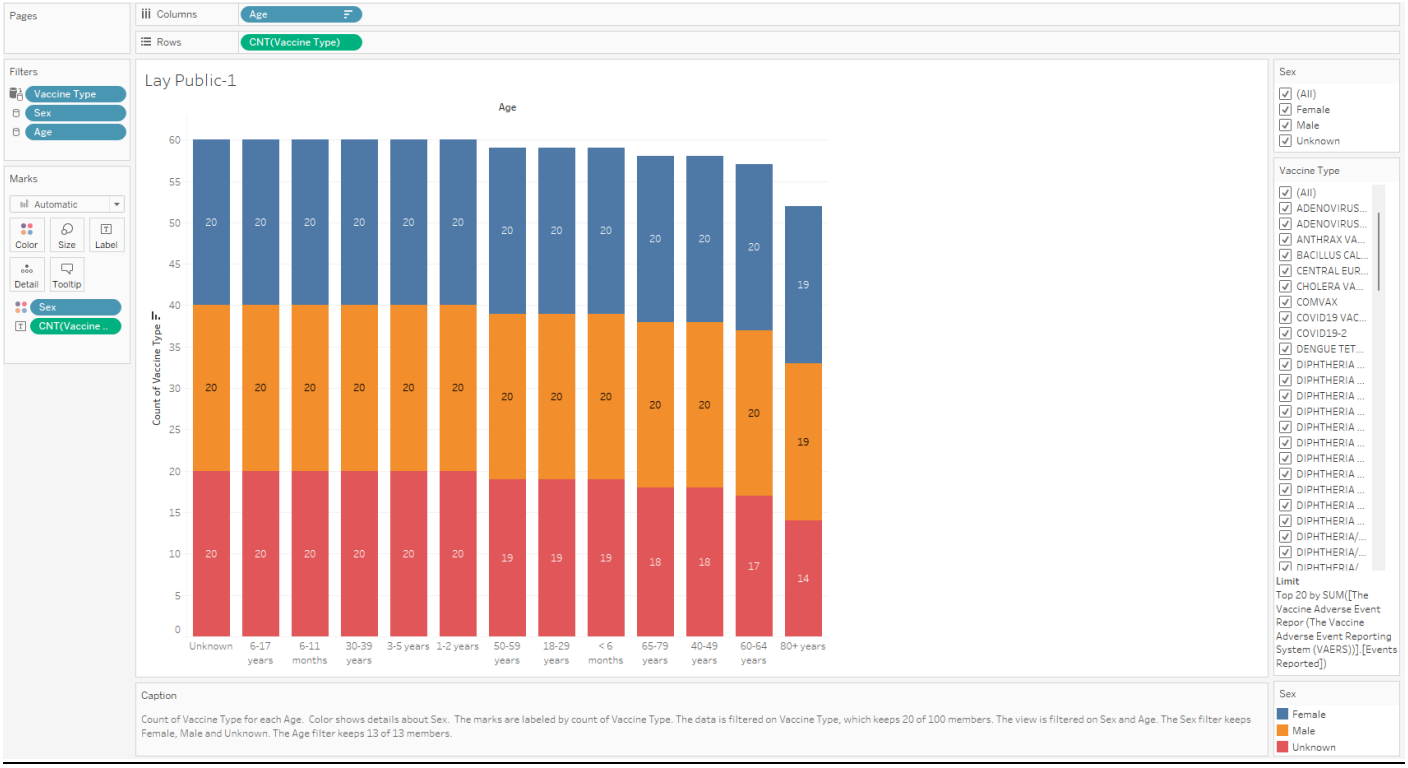
2. **Circle View of Adverse Events**: Circle sizes represent risk percentages, and healthcare providers may easily grasp the data presentation and its implications for patient therapy.

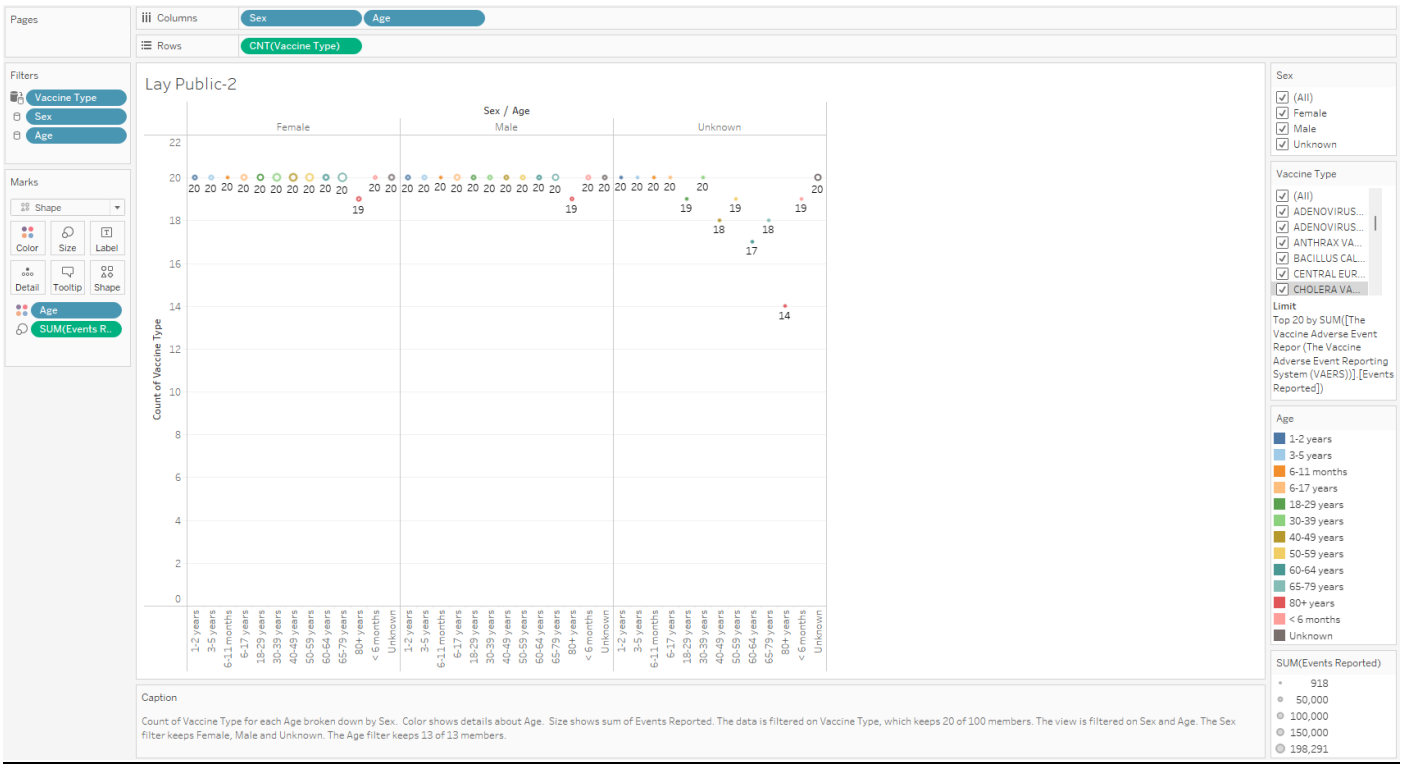
**Message Strategy**: Giving healthcare workers practical, actionable knowledge is the strategy when talking with them. Presentation of the data should be simple and direct, with an emphasis on its practical use in the treatment of individual patients. While it is OK to use medical terminology in this context, the major focus should be on the patient and how their health and safety are directly affected. Healthcare providers can use this method to better inform their judgments while interacting with patients.

**Reasoning & Description**: Based on my observations of numerous doctor-patient interactions, I can say with certainty that doctors and other medical staff highly value feedback that helps them develop stronger relationships with their patients. This led to the fair conclusion that the adverse events should be arranged in a sequential manner according to the vaccine. This allows them to effectively handle problems when they emerge. I included age and gender as evaluation criteria since I thought that various types of

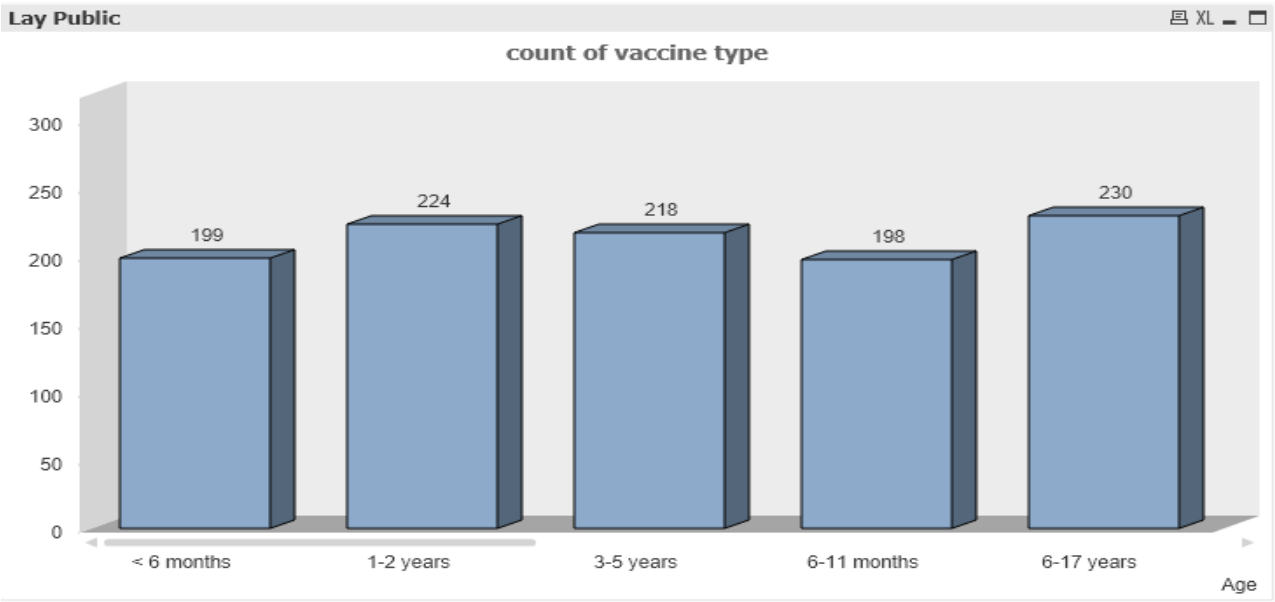
questions would be more prevalent from certain groups. Thanks to the new color-coding system, vaccines may be quickly located, even for people with hectic schedules.

## LAY PUBLIC



**QlikView:**




**DASHBOARD:**

**Graphics**:

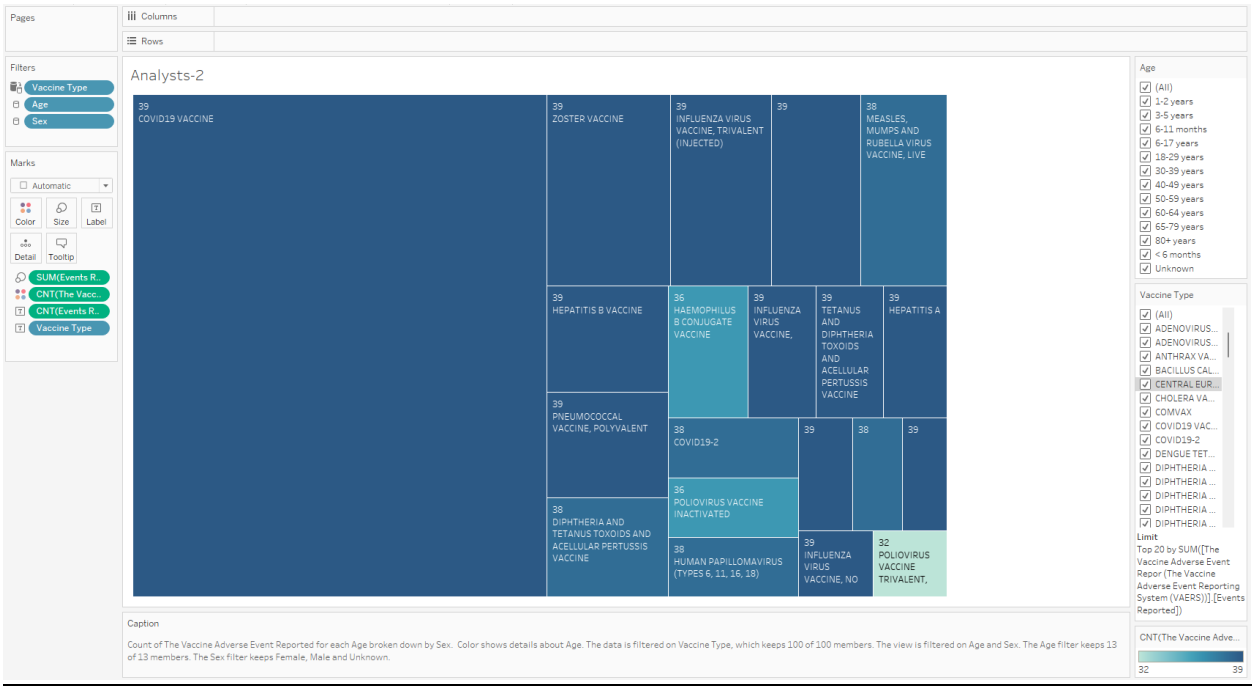
1. **Age-Demographic Bar Chart**: This bar chart shows different vaccine types broken down by age groups, with colors indicating gender. Because of its intuitive layout, the data is available to a wider audience.

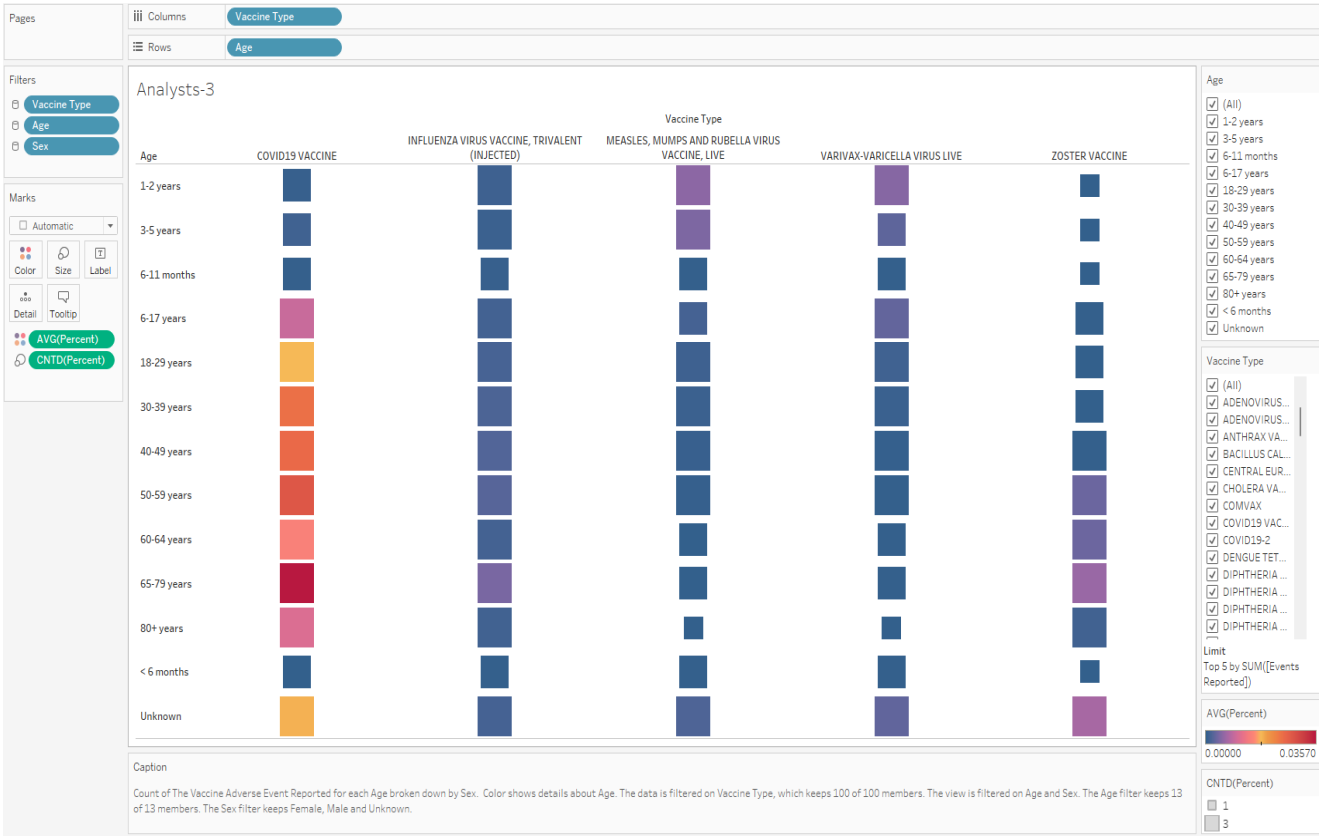
2. **Side-by-Side Circle Visualization**: The size of the circle represents the risk when comparing different kinds of vaccines across populations. This format is perfect for expressing complex ideas because of its visual appeal and simplicity.

**Message Strategy**: The goal of the messaging strategy is to make complicated facts more accessible to the general audience by making it more easily digested. To make sure people who don't have a medical background understand, it's important to utilize common language. The public should have access to accurate and accessible information regarding the dangers and benefits of vaccines, and the data should pertain to common health problems. Building trust and empowering the public to make educated health decisions are the goals of this method.

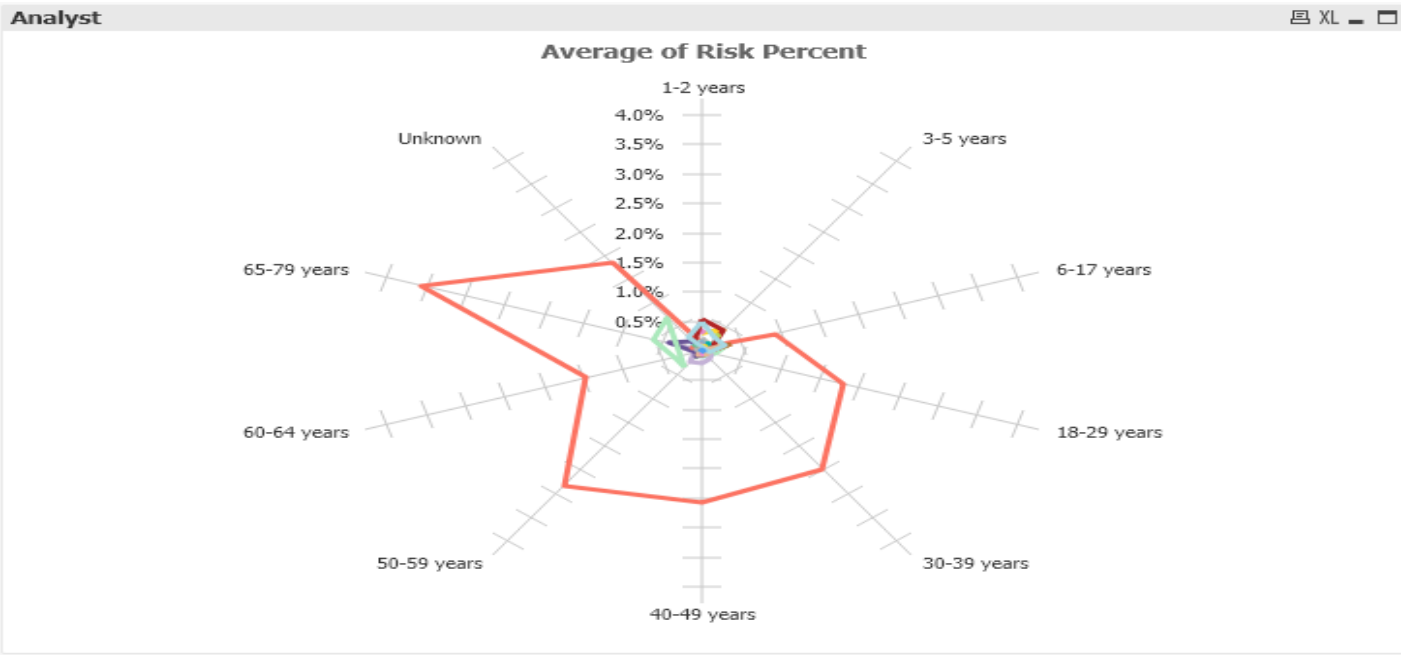
**Reasoning & Description**: As a member of the public, I can attest to the importance of easily accessible information. The risk of boredom increases if the visuals and terminology are overly complicated. The age-old question, "Is this vaccine suitable for my age group?" prompted me to consider segmenting the data according to age. Our use of 'Gender' color coding was not accidental. Graphical representations of data are both easier to understand and more relatable to the general public, in my opinion..

## Analysts


Pages
Columns
Rows
Filters
Vaccine Type
Age
Sex
Marks
Automatic
Color
Size
Label
Detail
Tooltip
SUM(Events R..
CNT(The Vacc..
CNT(Events R..
Vaccine Type
Analysts-2
39
COVID19 VACCINE
39
ZOSTER VACCINE
39
INFLUENZA VIRUS VACCINE, TRIVALENT (INJECTED)
39
38
MEASLES, MUMPS AND RUBELLA VIRUS VACCINE, LIVE
39
HEPATITIS B VACCINE
36
HAEMOPHILUS B CONJUGATE VACCINE
39
INFLUENZA VIRUS VACCINE,
39
TETANUS AND DIPHTHERIA TOXOIDS AND ACELLULAR PERTUSSIS VACCINE
39
HEPATITIS A
39
PNEUMOCOCCAL VACCINE, POLYVALENT
38
COVID19-2
39
38
39
36
POLIOVIRUS VACCINE INACTIVATED
38
DIPHTHERIA AND TETANUS TOXOIDS AND ACELLULAR PERTUSSIS VACCINE
38
HUMAN PAPILLOMAVIRUS (TYPES 6, 11, 16, 18)
39
INFLUENZA VIRUS VACCINE, NO
32
POLIOVIRUS VACCINE TRIVALENT,
Caption
Count of The Vaccine Adverse Event Reported for each Age broken down by Sex. Color shows details about Age. The data is filtered on Vaccine Type, which keeps 100 of 100 members. The view is filtered on Age and Sex. The Age filter keeps 13 of 13 members. The Sex filter keeps Female, Male and Unknown.
Age
(All)
1-2 years
3-5 years
6-11 months
6-17 years
18-29 years
30-39 years
40-49 years
50-59 years
60-64 years
65-79 years
80+ years
< 6 months
Unknown
Vaccine Type
(All)
ADENOVIRUS...
ADENOVIRUS...
ANTHRAX VA...
BACILLUS CAL...
CENTRAL EUR...
CHOLERA VA...
COMVAX
COVID19 VAC...
COVID19-2
DENGUE TET...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
Limit
Top 20 by SUM([The Vaccine Adverse Event Repor (The Vaccine Adverse Event Reporting System (VAERS))] [Events Reported])
CNT(The Vaccine Adve...
32
39


Pages
Columns
Vaccine Type
Rows
Age
Filters
Vaccine Type
Age
Sex
Marks
Automatic
Color
Size
Label
Detail
Tooltip
AVG(Percent)
CNTD(Percent)
Analysts-3
Vaccine Type
Age
COVID19 VACCINE
INFLUENZA VIRUS VACCINE, TRIVALENT (INJECTED)
MEASLES, MUMPS AND RUBELLA VIRUS VACCINE, LIVE
VARIVAX-VARICELLA VIRUS LIVE
ZOSTER VACCINE
1-2 years
3-5 years
6-11 months
6-17 years
18-29 years
30-39 years
40-49 years
50-59 years
60-64 years
65-79 years
80+ years
< 6 months
Unknown
Caption
Count of The Vaccine Adverse Event Reported for each Age broken down by Sex. Color shows details about Age. The data is filtered on Vaccine Type, which keeps 100 of 100 members. The view is filtered on Age and Sex. The Age filter keeps 13 of 13 members. The Sex filter keeps Female, Male and Unknown.
Age
(All)
1-2 years
3-5 years
6-11 months
6-17 years
18-29 years
30-39 years
40-49 years
50-59 years
60-64 years
65-79 years
80+ years
< 6 months
Unknown
Vaccine Type
(All)
ADENOVIRUS...
ADENOVIRUS...
ANTHRAX VA...
BACILLUS CAL...
CENTRAL EUR...
CHOLERA VA...
COMVAX
COVID19 VAC...
COVID19-2
DENGUE TET...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
DIPHTHERIA ...
Limit
Top 5 by SUM([Events Reported])
AVG(Percent)
0.00000
0.03570
CNTD(Percent)
1
3

**QlikView:**




**DASHBOARD:**

**Graphics**:

1. **Detailed Demographic Bar Chart**: Detailed by gender and age group, this chart examines unfavorable events in great detail. For analysts to conduct a thorough evaluation, it is necessary to provide them with detailed information.
2. **Treemap of Vaccine Events**: By utilizing the treemap to explore data hierarchies and patterns in vaccine event reporting, it is possible to adequately satisfy the analytical requirements of this audience.
3. **Radar Chart for analyst**: The radar map helps researchers assess the percentage of risk for different age groups. If you're looking for subtle trends or patterns, this chart style is your best bet. Using this figure, researchers can determine which age groups require safer and more effective vaccines and how risk varies with age.

**Message Strategy**: The goal of analysts is to provide data in a thorough and detailed way so that it can be analyzed in depth. Because this is an audience that is well-versed in analyzing complicated data sets, it is OK to utilize technical language and industry-specific terminology. To motivate analysts to dig deeper and find their own insights, the spotlight should be on finding trends, patterns, and outliers in the data. This method allows for more complex analytical activities to be performed and promotes a better comprehension of the data.

**Reasoning & Description**: I can relate to the analyst's need for crystal clear explanations because I've dabbled in data analysis myself. In large datasets, they search for trends, anomalies, and insights. I divided the data by age and gender to give them a more complete picture. My first thought was that it would appease their natural tendency to think critically about everything. Using color to represent age groupings allowed me to more easily find age-related trends and have a more natural and intuitive exploration of the data.

## Feedback Mechanism for Each Audience

**Hospital Management**

1. **Custom Feedback Forms**: Along with each hospital management visualization, you will receive a personalized feedback form. In this format, questions will be asked on the data's clarity, actionability, and usefulness. One may, for instance, wonder how much the visualization influences policy choices or how well it clarifies urgent matters.
2. **Scheduled Review Meetings**: During regularly planned sessions, the hospital administration will go over the graphics. Senior management will have an opportunity to comment on the data's value for strategy and decision-making during these gatherings.
3. **Interactive Dashboard Features**: The dashboard will incorporate interactive features like "comment boxes" or "suggestion tabs" so that managers may provide comments or inquiries instantly without leaving the platform.

**Healthcare Workers**

1. **Real-Time Response Feature**: Inside the dashboard, there will be a real-time response feature reminiscent of a chat room or forum where medical professionals may pose queries, receive immediate responses, and document their use of the data in patient visits.
2. **Follow-Up Surveys**: There will be follow-up questionnaires given to healthcare workers following the implementation. These surveys will inquire as to whether or not doctors and nurses feel the graphics have improved their ability to educate patients about vaccines and how they handle patient care in general.
3. **Focus Group Discussions**: Regular focus groups will be held with the whole healthcare workforce. These discussions are vital for gaining qualitative feedback and understanding the experts' data use in their work.

**Lay Public**

1. **Simple Online Surveys**: After each engagement, participants will be asked to complete brief online surveys that are designed to be easy for people from all walks of life to finish. These surveys will inquire about the information's legibility, its applicability to their individual health choices, and any other useful details.
2. **Feedback Kiosks**: Direct user interaction with visual representations at feedback terminals allows for real-time feedback in settings like community centers and hospitals.
3. **Community Forums and Workshops**: Workshops and community forums are two options that can be utilized to collect the thoughts of individuals. On these websites, individuals are able to share their perspectives and individual experiences in relation to the vaccine data.

**Analysts**

1. **Data Utilization and Impact Forms**: Forms will be distributed to analysts with a focus on the usefulness of the data; these forms will query about the comprehensiveness and specificity of the data, as well as any areas that may require additional explanation.
2. **Interactive Webinars**: Webinars can be held on a regular basis so analysts can discuss the visualizations, share their findings, and provide feedback. By providing a forum for participants to debate and exchange data-driven ideas and solutions, webinars such as this one will make group work easier.
3. **Online Feedback and Discussion Boards**: A niche online community or platform is essential for analysts to have access to. On this platform, participants in the ongoing debates can express their opinions, engage in conversation, and provide detailed feedback on the graphic representations.

## CONCLUSION

The purpose of this project is to demonstrate how sophisticated healthcare data may be effectively communicated to a wide variety of individual consumers through the utilization of individualized data visualizations. The use of visuals that are created with the assistance of advanced technologies such as Tableau and QlikView is beneficial to the process of making informed decisions in healthcare settings. Not only do these visualizations provide information to each audience segment, but they also ensure that both engagement and comprehension are achieved.