# MIMIC Visualization

Al395T Aakash Nand

# Visualization-1 (Word of Cloud of prescribed medicines)

## What does it convey?

- Word cloud is new type of visualization where word's font size are decided by their frequency distribution.
- In this graph we can Sodium Chloride and Potassium Chloride are the most common.
   Which is widely used for oral rehydration and to treat hypokalemia.

- Use wordcloud python library
- Extract drugs column from prescription table and pass it as one string text to Wordcloud like below

```
Ondansetron

Potassium Chloride
Furosemide

Levofloxacin
Amiodarone HCl Ipratropium Bromide

SW SW

Sodium Chloride
Prednisone
Amiodarone HCl Ipratropium Bromide

SW SW

Sodium Chloride

SW SW

Sodium Chloride

Prednisone
Amiodarone HCl Ipratropium Bromide

Prednisone
Amiodarone HCl Ipratropium Bromide

D5W NS NS Mini
Reparin Flush
Chloride Mini
D5W D5W

Vac Polyvalent

Warfarin
Units ml Docusate Sodium
Vac Polyvalent

Warfarin

NS Iso

Magnesium Sulfate

Heparin Flush
Chloride Flush
Acetylcysteine Acetaminophen
Dextrose NS
Morphine

Acetylcysteine Acetaminophen

Levothyroxine Sodium
Hydralazine HCl
Insulin Sodium Bicarbonate

Levothyroxine Sodium
Hydralazine HCl
Insulin Sodium Bicarbonate

Dextrose D5W

Sulfate Magnesium

Dextrose D5W

Sulfate Magnesium

Dextrose D5W

Chlorhexidine Gluconate

Dextrose Sodium
Albuterol Neb Osmotic Dextrose

Onloride Sodium

Fentanyl Citrate
Pantoprazole Vancomycin

Multivitamin

D5 2NS

Soln Ipratropium

Sulfate

NS D5W

Dostrose Sodium

Artificial Tear Bag Plus

D5 2NS

Soln Ipratropium

Sulfate Morphine

Potassium Chl Lorazepam

NS Iso

Phytonadione
Norepinephrine
```

```
wordcloud = WordCloud(
    max_font_size=60, max_words=100, background_color="white", width=1200, height=600
).generate(' '.join(prescriptions['drug']))

plt.figure(figsize=(14, 6))
plt.imshow(wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()
```

# Visualization-2 (Frequency Distribution of Top 15 Medicines by Gender)

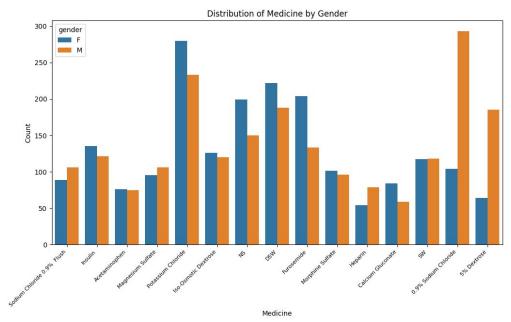
## What does it convey?

- Frequency Distribution of medicines by Genders.
- In this graph we can find some interesting insights such as Insulin being prescribed more to females than males.

- Join prescription and patient table on column "subject\_id"
- Filter for top15 medicines
- Use seaborn to create countplot

```
df_patient_prescription = pd.merge(
    patients, prescriptions, on='subject_id', how='inner'
)
top_medicines = df_patient_prescription["drug"].value_counts().nlargest(15).index
df_filtered = df_patient_prescription[
    df_patient_prescription["drug"].isin(top_medicines)
]

# Set up the figure
plt.figure(figsize=(12, 6))
sns.countplot(data=df_filtered, x="drug", hue="gender")
plt.vitle("Distribution of Medicine by Gender")
plt.vlabel(["Medicine")]
plt.vlabel("Count")
plt.vticks(rotation=45, ha="right", fontsize=8) # Rotate and align labels
plt.show()
```

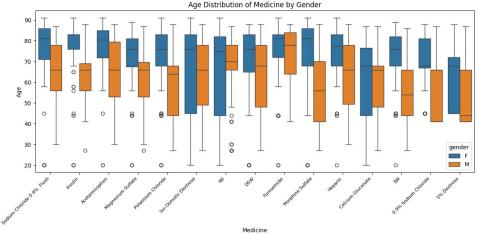


# Visualization-3 (Age Distribution of medicines by Gender)

### What does it convey?

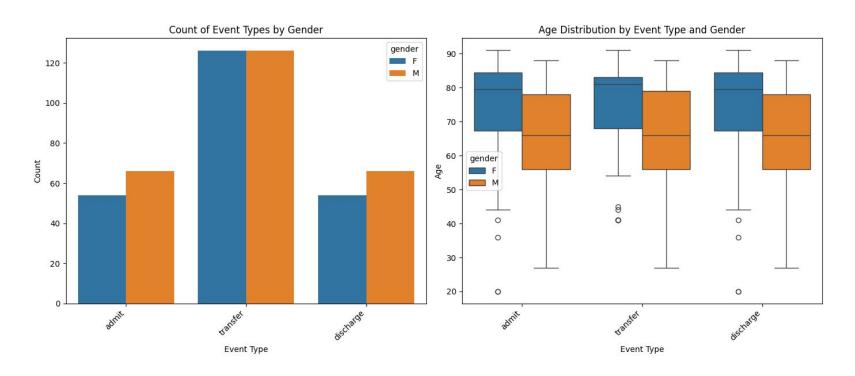
- How different age scale and frequency distribution of medicine is related.
- In this graph we can see that Insulin is consumed by young men than females.

- Join prescription and patient table on column "subject\_id"
- Filter for top15 medicines
- Use seaborn to create boxplot



```
plt.figure(figsize=(12, 6))
sns.boxplot(data=df_filtered, x="drug", y="age", hue="gender")
plt.title("Age Distribution of Medicine by Gender")
plt.xlabel("Medicine")
plt.ylabel("Age")
plt.ylabel("Age")
plt.xticks(rotation=45, ha="right", fontsize=8) # Rotate and align labels
plt.tight_layout()
plt.show()
```

# Visualization-4 (Patient transfer by age and gender)



# Visualization-4 (Continued..)

### What does it convey?

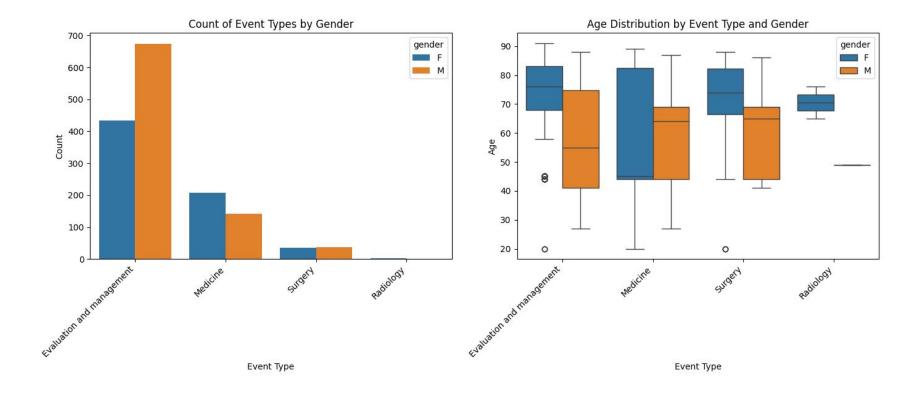
- Answer questions like Is there any relation between patient's transfer events and gender?
- Is there any relation between patient's transfer events and age along with gender?

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- Join transfer and patient table on column "subject\_id"
- Use seaborn to create boxplot and count plot

```
# Bar plot - Count of Event Types by Gender
plt.figure(figsize=(14, 6))
plt.subplot(1, 2, 1)
sns.countplot(data=patient_transfer, x="eventtype", hue="gender")
plt.title("Count of Event Types by Gender")
plt.xlabel("Event Type")
plt.ylabel("Count")
plt.xticks(rotation=45, ha="right", fontsize=10)
plt.subplot(1, 2, 2)
sns.boxplot(data=patient_transfer, x="eventtype", y="age", hue="gender")
plt.title("Age Distribution by Event Type and Gender")
plt.xlabel("Event Type")
plt.ylabel("Age")
plt.xticks(rotation=45, ha="right", fontsize=10)
plt.tight_layout()
plt.show()
```

# Visualization-5 (CPT events by patients)



# Visualization-5 (Continued..)

### What does it convey?

- Answer questions like Is there any relation between patient's CPT events and gender?
- Is there any relation between patient's CPT events and age along with gender?
- We can see that very few patients have used radiology related services.

- Join CPTEVENTS and patient table on column "subject id"
- Use seaborn to create boxplot and count plot

