

Import required packages

```
import pandas as pd
from charts import *
```

Load data

```
merged_data = pd.read_csv("merged_data.csv", low_memory=False)
```

Define function of counting the number of patient by field

```
def aggregate_counts_for_hospital_death(data_source, field, field_name):
    source_data = data_source.groupby(["hospital_death", field]).size()
    source_data = source_data.reset_index(name="No.Patient")
    source_data = source_data.pivot(index=field, columns="hospital_death",
                                     values="No.Patient").reset_index()
    source_data.columns = [field_name, "Live", "Death"]
    source_data.sort_values("Live", inplace=True)
    return source_data
```

Stacked Bar Chart - Hospital Death by Age Group

```
age_group_category = ["Below 20", "Between 20 and 40", "Between 40 and 60",
                      "Between 60 and 80", "Above 80"]
merged_data["age_group"] = [""] * len(merged_data["age"])
merged_data.loc[(merged_data["age"] >= 1) & (merged_data["age"] < 20),
                "age_group"] = "Below 20"
merged_data.loc[(merged_data["age"] >= 20) & (merged_data["age"] < 40),
                "age_group"] = "Between 20 and 40"
merged_data.loc[(merged_data["age"] >= 40) & (merged_data["age"] < 60),
                "age_group"] = "Between 40 and 60"
merged_data.loc[(merged_data["age"] >= 60) & (merged_data["age"] < 80),
                "age_group"] = "Between 60 and 80"
merged_data.loc[(merged_data["age"] >= 80), "age_group"] = "Above 80"
merged_data["age_group"] = merged_data["age_group"].astype("category")
merged_data["age_group"].cat.reorder_categories(age_group_category,
                                                inplace=True)
source_data = aggregate_counts_for_hospital_death(merged_data, "age_group",
                                                  "Age Group")
stacked_bar_chart_hospital_death(source_data, "Age Group", x_axis_fontsize=8)
```

Stacked Bar Chart - Hospital Death by Elective Surgery

```
field = "elective_surgery"
merged_data[field] = merged_data[field].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "elective_surgery", "Elective Surgery")
stacked_bar_chart_hospital_death(source_data, "Elective Surgery")
```

Stacked Bar Chart - Hospital Death by Ethnicity

```
merged_data["ethnicity"] = merged_data["ethnicity"].astype("category")
source_data = aggregate_counts_for_hospital_death(merged_data, "ethnicity",
                                                    "Ethnicity")
stacked_bar_chart_hospital_death(source_data, "Ethnicity")
```

Stacked Bar Chart - Hospital Death By Gender

```
source_data = aggregate_counts_for_hospital_death(merged_data, "gender",
                                                    "Gender")
stacked_bar_chart_hospital_death(source_data, "Gender")
```

Stacked Bar Chart - Hospital Death By Hospital Admit Source

```
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "hospital_admit_source", "Hospital Admit Source")
stacked_bar_chart_hospital_death(source_data, "Hospital Admit Source",
                                  rotate_x=30)
```

Stacked Bar Chart - Hospital Death By ICU Admit Source

```
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "icu_admit_source", "ICU Admit Source")
stacked_bar_chart_hospital_death(source_data, "ICU Admit Source",
                                  x_axis_fontsize=10)
```

Stacked Bar Chart - Hospital Death By ICU Stay Type

```
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "icu_stay_type", "ICU Stay Type")
stacked_bar_chart_hospital_death(source_data, "ICU Stay Type",
                                  x_axis_fontsize=10)
```

Stacked Bar Chart - Hospital Death By ICU Type

```
source_data = aggregate_counts_for_hospital_death(merged_data, "icu_type",
                                                    "ICU Type")
stacked_bar_chart_hospital_death(source_data, "ICU Type", x_axis_fontsize=10)
```

Stacked Bar Chart - Hospital Death By AIDS

```
merged_data["aids"] = merged_data["aids"].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data, "aids", "AIDS")
stacked_bar_chart_hospital_death(source_data, "AIDS")
```

Stacked Bar Chart - Hospital Death By Cirrhosis

```
merged_data["cirrhosis"] = merged_data["cirrhosis"].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data, "cirrhosis",
                                                    "Cirrhosis")
stacked_bar_chart_hospital_death(source_data, "Cirrhosis")
```

Stacked Bar Chart - Hospital Death By Diabetes Mellitus

```
field = "diabetes_mellitus"
merged_data[field] = merged_data[field].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "diabetes_mellitus", "Diabetes Mellitus")
stacked_bar_chart_hospital_death(source_data, "Diabetes Mellitus")
```

Stacked Bar Chart - Hospital Death By Hepatic Failure

```
merged_data["hepatic_failure"] = merged_data["hepatic_failure"].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "hepatic_failure", "Hepatic Failure")
stacked_bar_chart_hospital_death(source_data, "Hepatic Failure")
```

Stacked Bar Chart - Hospital Death By

```
merged_data["immunosuppression"] = merged_data["immunosuppression"].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "immunosuppression", "Immunosuppression")
stacked_bar_chart_hospital_death(source_data, "Immunosuppression",
                                  bar_width=0.4)
```

Stacked Bar Chart - Hospital Death By Lymphoma

```
merged_data["lymphoma"] = merged_data["lymphoma"].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data, "lymphoma",
                                                    "Lymphoma")
stacked_bar_chart_hospital_death(source_data, "Lymphoma")
```

Stacked Bar Chart - Hospital Death By Solid Tumor With Metastasis

```
field = "solid_tumor_with_metastasis"
merged_data[field] = merged_data[field].astype("str")
source_data = aggregate_counts_for_hospital_death(merged_data,
                                                    "solid_tumor_with_metastasis", "Solid Tumor With Metastasis")
stacked_bar_chart_hospital_death(source_data, "Solid Tumor With Metastasis")
```

Histogram Chart for Age & Potassium Final

```
histogram_chart(merged_data["age"], name=col.title(), bins=5)
histogram_chart(merged_data["potassium_final"], name=col.title(), bins=5)
```