

Questions:

- Which age groups are most likely to die from covid?
- What is the ratio between deaths associated with covid compared to other deaths in those age groups?
- Which states have the highest rate of Covid Deaths?
- Which states have the most Covid Deaths with respect to Age Groups?

Custom SQL Functions Defined:

- `chartoint()`:

Return type	integer			
Language	plpgsql x ▾			
Arguments				
	Data type	Mode	Argument name	Default
🗑	character varying ▾	IN ▾	string	

Begin

```
Return Cast(translate(string, ',', '' ) as int);
```

End;

- `chartonumeric()`

Return type	numeric			
Language	plpgsql x ▾			
Arguments				
	Data type	Mode	Argument name	Default
🗑	character varying ▾	IN ▾	string	

Begin

```
Return Cast(translate(string, ',', '' ) as numeric);
```

End;

Answers:

- Which Age Groups are most likely to die from covid?

- SQL Query:

```
select "Age Group", sum(chartoint("Covid-19 Deaths")) as "Total Covid-19 Deaths"
from public."Covid Deaths By Age and Sex"
group by "Age Group"
having "Age Group" != 'All Ages'
order by "Total Covid-19 Deaths" desc
limit 10;
```

- Output:

	Age Group character varying	Total Covid-19 Deaths bigint
1	85 years and over	2248576
2	75-84 years	2122652
3	65-74 years	1771889
4	50-64 years	1328691
5	55-64 years	1053135
6	45-54 years	445657
7	40-49 years	276869
8	35-44 years	167352
9	30-39 years	105126
10	25-34 years	64075

- Explanation:

The data shows that as the “Age Group” increases it tracks with the increase in Covid Deaths. Showing that death from Covid is closely linked to age.

- What is the percentage of deaths associated with covid compared to other deaths in those age groups?

- SQL Query:

```
select "Age Group",
       (sum(chartonumeric("Pneumonia Deaths"))/sum(chartonumeric("Total Deaths")))) as "Percentage of Deaths by Pneumonia",
       (sum(chartonumeric("Influenza Deaths"))/sum(chartonumeric("Total Deaths")))) as "Percentage of Deaths by Influenza",
       (sum(chartonumeric("Covid-19 Deaths"))/sum(chartonumeric("Total Deaths")))) as "Percentage of Deaths by Covid"
from public."Covid Deaths By Age and Sex"
group by "Age Group"
having "Age Group" != 'All Ages'
order by "Percentage of Deaths by Covid" desc, "Percentage of Deaths by Pneumonia" desc, "Percentage of Deaths by Influenza" desc
limit 10;
```

- Output:

	Age Group character varying	Percentage of Deaths by Pneumonia numeric	Percentage of Deaths by Influenza numeric	Percentage of Deaths by Covid numeric
1	75-84 years	0.12095071961713705726	0.00132798292712408805	0.13004454771294518076
2	65-74 years	0.12323701150893417415	0.00156722294451302789	0.12976985354129840089
3	55-64 years	0.11063181039573294581	0.00206602830797622239	0.11816046063432925831
4	50-64 years	0.10900946853418176798	0.00214603534818804245	0.11796855127298491223
5	85 years and over	0.09786113280573771722	0.00103848236954550362	0.11482624570137442651
6	45-54 years	0.09729895602252894432	0.00198924696811809156	0.11396347037801829678
7	40-49 years	0.08357652963944727328	0.00162523792528061603	0.10093719137158341849
8	35-44 years	0.06494954125703786000	0.00137028608507980563	0.07679843165113048602
9	30-39 years	0.04932737376466807990	0.00135705054632701982	0.05715596784181662093
10	25-34 years	0.03808077918060439338	0.00114577573199203666	0.04253509850949579893

- Explanation:

This supports our previous observation that deaths by covid tracks with higher age groups. It shows that this is true for pneumonia too. However, the category of 85 and over breaks the pattern slightly. Influenza doesn't change dramatically with age. Another observation I made from this data is that the percentage of deaths by covid and pneumonia are almost the same and only off by $\geq 1\%$ for the majority of Age Groups.

- Which States have the highest rates of Covid Deaths?

- SQL Query

```
select "State",
sum(chartoint("Covid-19 Deaths")) as "Total Covid-19 Deaths",
sum(chartoint("Total Deaths")) as "Total Deaths",
(sum(chartonumeric("Covid-19 Deaths")) / sum(chartonumeric("Total Deaths"))) as "Percentage of Deaths by Covid"
from public."Covid Deaths By Age and Sex"
group by "State"
having "State" != 'United States' and "State" != 'New York City'
order by "Percentage of Deaths by Covid" desc
limit 10;
```

- Output:

	State character varying	Total Covid-19 Deaths bigint	Total Deaths bigint	Percentage of Deaths by Covid numeric
1	New Jersey	336138	2033857	0.16527120638274962301
2	Texas	881238	5933766	0.14851242870042398032
3	Connecticut	107209	777982	0.13780395947464080146
4	Mississippi	123616	912084	0.13553137649602448897
5	Rhode Island	33966	255506	0.13293621284823056993
6	Arizona	233591	1776538	0.13148663299068187677
7	New York	340444	2621230	0.12987948405901046455
8	Nevada	94394	733876	0.12862390921627086865
9	California	951001	7413899	0.12827272127661841630
10	South Dakota	26514	212536	0.12475063048142432341

- Explanation:

Excluding the categories of “United States” and “New York City” to only focus on states. This data shows that while California is by far the worst in terms of total deaths by covid and deaths in general it is actually not as bad as some of the other densely populated states or even some of the less populated states such as Mississippi or Nevada in terms of the percentage of deaths by covid.

- Which States have the highest Covid Deaths with respect to Age Groups?

- SQL Query:

```
select "State", "Age Group",
sum(chartoint("Covid-19 Deaths")) as "Total Covid-19 Deaths",
sum(chartoint("Total Deaths"))as "Total Deaths"
from public."Covid Deaths By Age and Sex"
group by "State", "Age Group"
having "State" != 'United States' and "State" != 'New York City' and "Age Group" != 'All Ages'
order by "Total Covid-19 Deaths" desc
limit 10;
```

- Output:

	State character varying	Age Group character varying	Total Covid-19 Deaths bigint	Total Deaths bigint
1	California	85 years and over	104748	1013094
2	California	75-84 years	100524	747228
3	Texas	65-74 years	95590	555102
4	Texas	75-84 years	94842	612864
5	California	65-74 years	94364	625854
6	California	50-64 years	86554	548370
7	Texas	50-64 years	82902	484344
8	Florida	75-84 years	79932	640818
9	Texas	85 years and over	75578	628440
10	Florida	85 years and over	73854	757608

- Explanation:

It is interesting to see that while we know that Covid deaths are primarily found among the older populations and Florida is found in the top 10 of Covid Deaths among the top two highest age groups, it is ranked 20 in terms of percentage of Deaths by Covid compared to Total Deaths.