Background
This document contains example code for local health jurisdictions to run SQL queries in Snowflake for COVID-19 vaccine information. The SQL queries can help facilitate state and county data comparisons and reconciliations.

LHJ Data Sources in CA_VACCINE
Configure your settings in Snowflake to the following and select one of the views from the table below, depending on your analytic needs:

- **Role**: CA_LHJ_RO (selection may vary by user)
- **Database**: CA_VACCINE
- **Schema**: PUBLIC
- **View**:

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**SQL Query Examples**

Below are some examples of SQL queries that can be used with the PUBLIC views in Snowflake. Inserting a double hyphen (--) in the beginning of a line makes the line a comment; any text between -- and the end of the line will be ignored and will not be evaluated in the query. To include the line in the query, delete the double hyphen.

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Counts

1. **Total COVID-19 doses administered statewide:**
   ```sql
   select
       count(distinct vax_event_id)
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ";
   ```

2. **Total COVID-19 doses administered by county:**
   ```sql
   select
       recip_county_label as RecipCounty,
       --admin_county_label as AdminCounty,
       --mixed_county as MixedCounty,
       count(distinct vax_event_id)
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
   group by
       1;
   ```

3. **Total COVID-19 doses administered by zip code:**
   ```sql
   select
       recip_address_zip as RecipZIP,
       --admin_address_zip as AdminZIP,
       --mixed_zip as MixedZIP,
       count(distinct vax_event_id)
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
   group by
       1;
   ```

4. **Total COVID-19 doses by manufacturer or dose number:**
   ```sql
   select
       vax_label as Manufacturer,
       --dose_num,
       count(distinct vax_event_id) as Doses
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
   group by
       1
   order by
       1;
   ```
5. **Total persons vaccinated by Vaccine Equity Metric quartile and county:**
   
   ```sql
   select
      hpiquartile as VEM,
      HPI_COUNTY_RCP_ZIP as Recipient_County,
      count(distinct recip_id) as Persons
   from
      "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   group by
      1, 2
   order by
      1, 2;
   ```

6. **Total persons vaccinated with at least one COVID-19 vaccine dose by county:**
   
   ```sql
   select
      recip_county_label as RecipCounty,
      --admin_county_label as AdminCounty,
      --mixed_county as MixedCounty,
      count(distinct recip_id) as Persons
   from
      "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   group by
      1
   order by
      1;
   ```

7. **Total persons fully or partially vaccinated by county:**
   
   ```sql
   select
      recip_county_label as RecipCounty,
      --admin_county_label as AdminCounty,
      --mixed_county as MixedCounty,
      count(distinct recip_id) as Persons
   from
      "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
      fully_vaccinated=1             --fully vaccinated
      --fully_vaccinated=0          --partially vaccinated
   group by
      1
   order by
      1;
   ```
8. **To see persons who received a J&J dose:**
   
   ```sql
   select
       distinct recip_id,
       recip_first_name,
       recip_last_name,
       recip_dob
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
       vax_received like '%J&J%';
   ```

9. **To count total persons who received only one dose of Pfizer or Moderna vaccine:**
   
   ```sql
   select
       mixed_county,
       vax_received,
       count(distinct recip_id) as Persons
   from
       "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
       (VAX_RECEIVED like 'Pfizer')
       or (VAX_RECEIVED like 'Moderna')
   and not (DS1_ORIG_DOSE_NUM = '2'
       and DS2_VAX_EVENT_ID is null
       and DS2_ADMIN_DATE is null)
   --only has single dose labeled as dose
   and DS2_ADMIN_DATE is null
   --does not have two doses
   --and mixed_county=''
   --county filter
   group by
       1, 2
   order by
       1, 2;
   ```
10. To count fully or partially vaccinated persons by VEM quartile or age group:
   select
     hpiquartile as VEM,
     --hpiquartile_rcp_zip as VEM_Recip,
     --recip_age_group,
     count(distinct recip_id) as Persons
   from
     "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
     fully_vaccinated = 1                     --fully vaccinated
     --fully_vaccinated = 0                  --partially vaccinated
     --and mixed_county = "                  --county filter
   group by
     1
   order by
     1;

11. To count total persons by vaccination status and user-defined age group:
   select
     count(distinct recip_id) as Persons
   from
     "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
     fully_vaccinated = 1                                    --fully vaccinated
     and recip_age between 12 and 15            --age filter
   ;

12. To count total persons by VEM quartile, county, and vaccination status:
   select
     HPIQUARTILE as VEM,
     HPI_COUNTY_RCP_ZIP as Recipient_County,
     count(distinct recip_id) as Persons
   from
     "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
   where
     fully_vaccinated = 1                     --fully vaccinated
     --fully_vaccinated = 0                  --partially vaccinated
   group by
     1, 2
   order by
     1, 2;
13. To count total federal agency administrations by county and age group:
   select
       COUNTY,
       DEMOGRAPHICCATEGORY,
       DEMOGRAPHICVALUE,
       CUMULATIVE TOTAL DOSES
   from

   "CA_VACCINE"."PUBLIC"."VW_DERIVED_FED_OVERALL_BY_COUNTY_DEMOGRAPHICS"
   where
       COUNTY = 'Alameda'
       and DEMOGRAPHICCATEGORY = 'Age Group';

14. To count total federal agency administrations by county and race/ethnicity:
   select
       COUNTY,
       DEMOGRAPHICCATEGORY,
       DEMOGRAPHICVALUE,
       CUMULATIVE TOTAL DOSES
   from

   "CA_VACCINE"."PUBLIC"."VW_DERIVED_FED_OVERALL_BY_COUNTY_DEMOGRAPHICS"
   where
       COUNTY = 'Alameda'
       and DEMOGRAPHICCATEGORY = 'Race/Ethnicity';

15. To see booster rate* by county:
   with elig_recipient as (
       select
           mixed_county as county,
           count(recip_id) as eligible_recipient_count
       from
           "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
       where
           is_booster_eligible=1
       group by 1 order by 1
   ),

   booster_recip as
   ( select mixed_county county,count (distinct a.bridge_recip_id) as measure_value
       from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
       inner join (select bridge_recip_id, max(admin_date) admin_date
               from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
where (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or bivalent_booster = 1) and admin_date >= '2021-08-13' group by 1) b
  on a.bridge_recip_id=b.bridge_recip_id and a.admin_date=b.admin_date and (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or bivalent_booster = 1)
group by 1
)

select
  a.county,
  eligible_Recipient_count as Booster_Eligible_Population,
  measure_value as Booster_Recipients,
  measure_value/eligible_recipient_count as booster_rate
from
  elig_recipient a
left join booster_recip b on a.county = b.county
order by
  1;

* Booster dose recipients are defined here as individuals who received a dose at least 24 days after primary series completion since August 13, 2021. This metric includes both individuals who received booster doses and individuals who received additional doses. Booster eligible recipients include individuals 5 years and older who completed a primary series of an approved or authorized COVID-19 vaccine and are eligible to receive a booster based on the recommended vaccination schedule.

16. To see booster recipients:
select
  a.mixed_county,
  count(distinct a.bridge_recip_id) booster_count
from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ" a
join (select bridge_recip_id, max(admin_date) admin_date
  from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
  where (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or BIVALENT_BOOSTER = 1) and admin_date >= '2021-08-13' group by 1) b
  on a.bridge_recip_id=b.bridge_recip_id and a.admin_date=b.admin_date and (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or BIVALENT_BOOSTER = 1)
group by 1;
17. To count bivalent recipients:
   select a.mixed_county, count(distinct a.bridge_recip_id) bivalent_booster_count
   from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ" a
   join (select bridge_recip_id, max(admin_date) admin_date
   from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
   where BIVALENT_BOOSTER = 1 and admin_date >= '2021-08-13' group by 1) b
   on a.bridge_recip_id=b.bridge_recip_id and a.admin_date=b.admin_date and
   (BIVALENT_BOOSTER = 1)
   group by 1;

18. Booster recipients count by age group:
   with recip_age_lhj as
      (select floor(months_between(admin_date, recip_dob)/12) as recip_age,
       case when recip_dob = '1900-01-01' or recip_age > 130 or DATEDIFF(DAY,recip_dob, admin_date) < 60 then 'Unknown Agegroup'
       when recip_age < 5 then 'Under 5'
       when recip_age between 5 and 11 then '5-11'
       when recip_age between 12 and 17 then '12-17'
       when recip_age between 18 and 49 then '18-49'
       when recip_age between 50 and 64 then '50-64'
       when recip_age >= 65 then '65+'
       else 'Unknown Agegroup'
       end as recip_age_group,* from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ"
      )
   ,elig_recipient as (
      select recip_age_group, count(recip_id) as eligible_recipient_count
      from "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ"
      where is_booster_eligible=1
      group by 1 order by 1
   )
   ,booster_recip as
      (select recip_age_group, count(distinct a.bridge_recip_id) as measure_value
       from recip_age_lhj a
       inner join (select bridge_recip_id, max(admin_date) admin_date
       from recip_age_lhj
       where BIVALENT_BOOSTER = 1 group by 1) b
       on a.bridge_recip_id=b.bridge_recip_id and a.admin_date=b.admin_date and
       (BIVALENT_BOOSTER = 1)
       group by 1 order by 1
   )
where (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or bivalent_booster = 1) and admin_date >= '2021-08-13' group by 1) b
on a.bridge_recip_id=b.bridge_recip_id and a.admin_date=b.admin_date and (is_additional_dose_and_24_days = 1 or is_additional_dose_and_52_days = 1 or bivalent_booster = 1)
group by 1
)

select a.recip_age_group, eligible_Recipient_count as Booster_Eligible_Population,
measure_value as Booster_Recipients,
measure_value/eligible_recipient_count as booster_rate
from
elig_recipient a
left join booster_recip b on a.recip_age_group = b.recip_age_group
order by
1;
Joins

19. Join dose-level data to geocoded addresses for vaccine administrators:
   
   ```sql
   select da.VAX_EVENT_ID,
       da.BRIDGE_RECIP_ID,
       da.RECIP_ID,
       da.RESPONSIBLE_ORG,
       da.ADMIN_NAME,
       ADMIN_GC_INPUT_ADDR,
       ADMIN_GC_STATUS,
       ADMIN_GC_SCORE,
       ADMIN_GC_MATCH_TYPE,
       ADMIN_GC_MATCH_ADDR,
       ADMIN_GC_ADDR_TYPE,
       ADMIN_GC_MATCH_ADDR_ZIP,
       ADMIN_GC_BLOCKGROUP,
       ADMIN_GC_BLOCKGROUP10,
       ADMIN_GC_COUNTYNAME,
       ADMIN_GC_SCHOOLDISTRICT,
       ADMIN_GC_US_CONGRESSDISTRICT,
       ADMIN_GC_CA_ASSEMBLY,
       ADMIN_GC_CA_SENATE,
       ADMIN_GC_SHAPE,
       ADMIN_GC_LONG,
       ADMIN_GC_LAT
   from
       "CA_VACCINE"."PUBLIC"."VW_GC_LHJ_DOSE_ADMIN_ADDRESS" da
   join "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ" lhj_dose
   on da.VAX_EVENT_ID=lhj_dose.VAX_EVENT_ID
   and da.BRIDGE_RECIP_ID=lhj_dose.BRIDGE_RECIP_ID;
   ```

20. Join dose-level data to geocoded addresses for vaccine recipients:

   ```sql
   select dr.VAX_EVENT_ID,
       dr.BRIDGE_RECIP_ID,
       dr.RECIP_ID,
       RECIP_GC_INPUT_ADDR,
       RECIP_GC_STATUS,
       RECIP_GC_SCORE,
       RECIP_GC_MATCH_TYPE,
       RECIP_GC_MATCH_ADDR,
       RECIP_GC_ADDR_TYPE,
       RECIP_GC_MATCH_ADDR_ZIP,
       RECIP_GC_BLOCKGROUP,
   ```
21. Join recipient-level data to geocoded addresses for vaccine administrators:

```sql
select ra.RECIP_ID,
       ra.RESPONSIBLE_ORG,
       ra.ADMIN_NAME,
       ra.ADMIN_ADDRESS_STATE,
       ADMIN_GC_INPUT_ADDR,
       ADMIN_GC_STATUS,
       ADMIN_GC_SCORE,
       ADMIN_GC_MATCH_TYPE,
       ADMIN_GC_MATCH_ADDR,
       ADMIN_GC_ADDR_TYPE,
       ADMIN_GC_MATCH_ADDR_ZIP,
       ADMIN_GC_BLOCKGROUP,
       ADMIN_GC_BLOCKGROUP10,
       ADMIN_GC_COUNTYNAME,
       ADMIN_GC_SCHOOLDISTRICT,
       ADMIN_GC_US_CONGRESSDISTRICT,
       ADMIN_GC_CA_ASSEMBLY,
       ADMIN_GC_CA_SENATE,
       ADMIN_GC_SHAPE,
       ADMIN_GC_LONG,
       ADMIN_GC_LAT
from
    "CA_VACCINE"."PUBLIC"."VW_GC_LHJ_DOSE_RECIP_ADDRESS" dr
  join "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_LHJ" lhj_dose
  on dr.VAX_EVENT_ID=lhj_dose.VAX_EVENT_ID
  and dr.BRIDGE_RECIP_ID=lhj_dose.BRIDGE_RECIP_ID;
```
22. Join recipient-level data to geocoded addresses for vaccine recipients:

```sql
select rr.RECIP_ID,
       RECIP_GC_INPUT_ADDR,
       GC_INPUT_ADDR,
       RECIP_GC_STATUS,
       RECIP_GC_SCORE,
       RECIP_GC_MATCH_TYPE,
       RECIP_GC_MATCH_ADDR,
       RECIP_GC_ADDR_TYPE,
       RECIP_GC_MATCH_ADDR_ZIP,
       RECIP_GC_BLOCKGROUP,
       RECIP_GC_BLOCKGROUP10,
       RECIP_GC_COUNTYNAME,
       RECIP_GC_SCHOOLDISTRICT,
       RECIP_GC_US_CONGRESSDISTRICT,
       RECIP_GC_CA_ASSEMBLY,
       RECIP_GC_CA_SENATE,
       RECIP_GC_SHAPE,
       RECIP_GC_LONG,
       RECIP_GC_LAT
from
    "CA_VACCINE"."PUBLIC"."VW_GC_LHJ_RECIP_RECIP_ADDRESS" rr
join "CA_VACCINE"."PUBLIC"."VW_ALL_IIS_RECIPIENTS_LHJ" lhj_recip
on rr.RECIP_ID=lhj_recip.RECIP_ID;
```

References

The data dictionaries for VW_ALL_IIS_LHJ and VW_ALL_IIS_RECIPIENTS_LHJ can be found on the CAIR2 Website.