



Intro to Exploring Healthcare Data in Looker

We've put together a quick start guide for your first time exploring data with Looker.

Using the Explore Environment in Looker allows you to **ask questions** and then find the **answers using data**. You will always start by asking a question. Maybe you are interested in knowing how many encounters have occurred by hospital? Maybe you then want to see for a specific hospital, the number of encounters broken down by the month a patient was admitted and the code name for the admission. [Here](#) is the Explore environment we will be using.

Key Terms:

Dimension - Attributes or categories you might use to group your data.

Measure - Aggregate Values (i.e. Totals, Counts, Averages). Appear in orange font.

Filter - Enables you to isolate and limit your data to only the values you care about.

Pivot - Enables you to view dimensions horizontally. Each value in the dimension will become a column in your data.

Let's Explore:

Once you have your question, you will need to break it down to identify the data that you need. To answer the question *"How many encounters have occurred by hospital?"*, you will need to figure out the **Number of Encounters** for each **Hospital**.

To find this out, you would start by clicking on **Hospital**. If you click on Hospital and hit Run, you will see a unique list of all hospitals.

The screenshot shows the Looker Explore interface. On the left, the 'Organizations, Practitioners & Encounters' dataset is selected. Under 'DIMENSIONS', 'Hospital' is highlighted and circled in red. The 'Run' button in the top right is also circled in red. The main area displays a table of hospitals under the 'DATA' tab.

Organization	Hospital
1	HALLMARK HEALTH SYSTEM
2	NORTH SHORE MEDICAL CENTER
3	LOWELL GENERAL HOSPITAL
4	NEWTON-WELLESLEY HOSPITAL
5	MILFORD REGIONAL MEDICAL CENTER
6	WINCHESTER HOSPITAL
7	FALMOUTH HOSPITAL
8	NORWOOD HOSPITAL
9	GOOD SAMARITAN MEDICAL CENTER
10	SIGNATURE HEALTHCARE BROCKTON HOSPITAL
11	LAHEY HOSPITAL & MEDICAL CENTER, BURLINGTON
12	METROWEST MEDICAL CENTER
13	LAWRENCE GENERAL HOSPITAL
14	STURDY MEMORIAL HOSPITAL
15	BETH ISRAEL DEACONESS HOSPITAL - PLYMOUTH
16	SOUTHCOST HOSPITAL GROUP, INC.
17	SAINT ANNE'S HOSPITAL
18	MOUNT ALBURN HOSPITAL
19	CAMBRIDGE HEALTH ALLIANCE
20	BEVERLY HOSPITAL CORPORATION
21	BERKSHIRE MEDICAL CENTER INC. - 1

Now we want to find out the Number of Encounters per Hospital. You would need to add a measure into your data set. Clicking on the measure **Number of Encounters** and hitting Run will show us the number of the Number of Encounters by each Hospital.

The screenshot shows the Looker Explore interface. On the left sidebar, under 'MEASURES', the 'Number of Encounters' measure is selected and circled in red. The main table displays the results of the query, with columns for 'Organization Hospital' and 'Encounter Number of Encounters'. The table is sorted in descending order by the number of encounters. The 'Row Limit' is set to 500. A red circle highlights the downward arrow in the 'Encounter Number of Encounters' column header, indicating that the data is sorted by this measure.

Organization Hospital	Encounter Number of Encounters
1 HALLMARK HEALTH SYSTEM	1,779,849
2 NORTH SHORE MEDICAL CENTER	1,439,230
3 LOWELL GENERAL HOSPITAL	1,348,110
4 NEWTON-WELLESLEY HOSPITAL	1,068,558
5 MILFORD REGIONAL MEDICAL CENTER	1,009,172
6 WINCHESTER HOSPITAL	1,008,858
7 FALMOUTH HOSPITAL	977,893
8 NORWOOD HOSPITAL	974,598
9 GOOD SAMARITAN MEDICAL CENTER	912,073
10 SIGNATURE HEALTHCARE BROCKTON HOSPITAL	907,395
11 LAHEY HOSPITAL & MEDICAL CENTER, BURLINGTON	887,658
12 METROWEST MEDICAL CENTER	883,833
13 LAWRENCE GENERAL HOSPITAL	866,254
14 STURDY MEMORIAL HOSPITAL	865,277
15 BETH ISRAEL DEACONESS HOSPITAL - PLYMOUTH	861,519
16 SOUTHCOAST HOSPITAL GROUP, INC	786,989
17 SAINT ANNE'S HOSPITAL	778,822
18 MOUNT AUBURN HOSPITAL	725,964
19 CAMBRIDGE HEALTH ALLIANCE	717,151
20 BEVERLY HOSPITAL CORPORATION	715,439
21 BERKSHIRE MEDICAL CENTER INC - 1	678,716
22 MORTON HOSPITAL	669,351

The downward arrow that you see in the column header of the Number of Encounters measure means that the data is **sorted**, or ordered, by Number of Encounters. It's in descending order, meaning that the Hospital with the most Number of Encounters are listed first. To change the order or field you want to sort by just click on the column header.

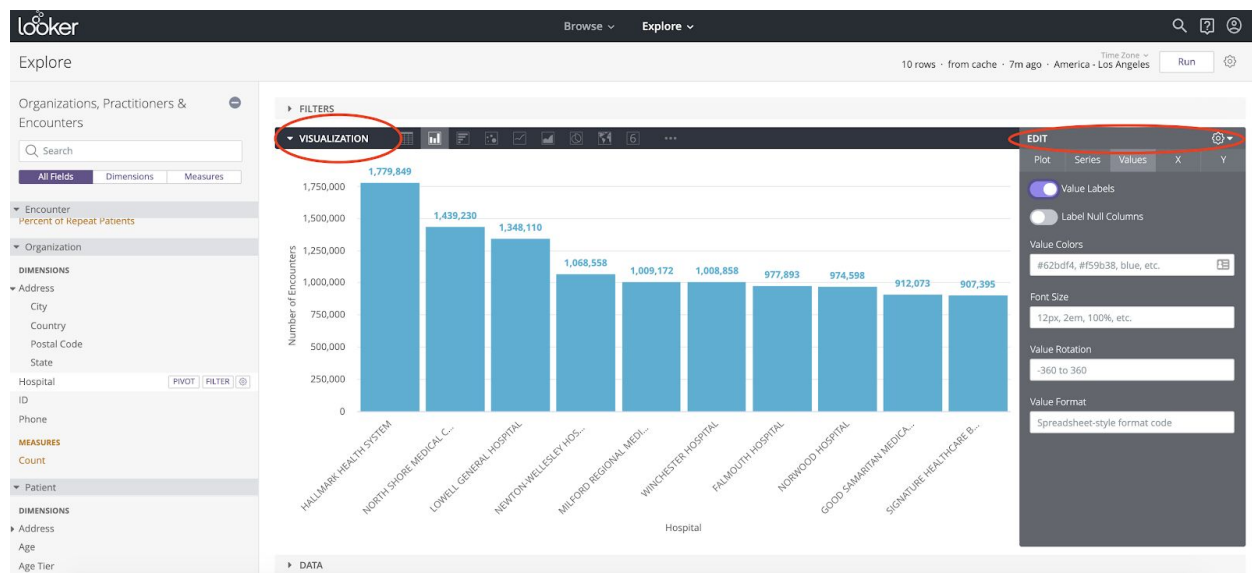
If you want to limit your results to only show, say, the **top 10 Hospitals**, you could use a Row Limit. This will simply limit the number of results that you see on the page.

The screenshot shows the Looker Explore interface with the 'Row Limit' set to 10. A red circle highlights the 'Row Limit' dropdown menu. The table displays the top 10 hospitals by the number of encounters. A yellow warning banner at the top of the table indicates that the row limit has been reached.

Organization Hospital	Encounter Number of Encounters
1 HALLMARK HEALTH SYSTEM	1,779,849
2 NORTH SHORE MEDICAL CENTER	1,439,230
3 LOWELL GENERAL HOSPITAL	1,348,110
4 NEWTON-WELLESLEY HOSPITAL	1,068,558
5 MILFORD REGIONAL MEDICAL CENTER	1,009,172
6 WINCHESTER HOSPITAL	1,008,858
7 FALMOUTH HOSPITAL	977,893
8 NORWOOD HOSPITAL	974,598
9 GOOD SAMARITAN MEDICAL CENTER	912,073
10 SIGNATURE HEALTHCARE BROCKTON HOSPITAL	907,395

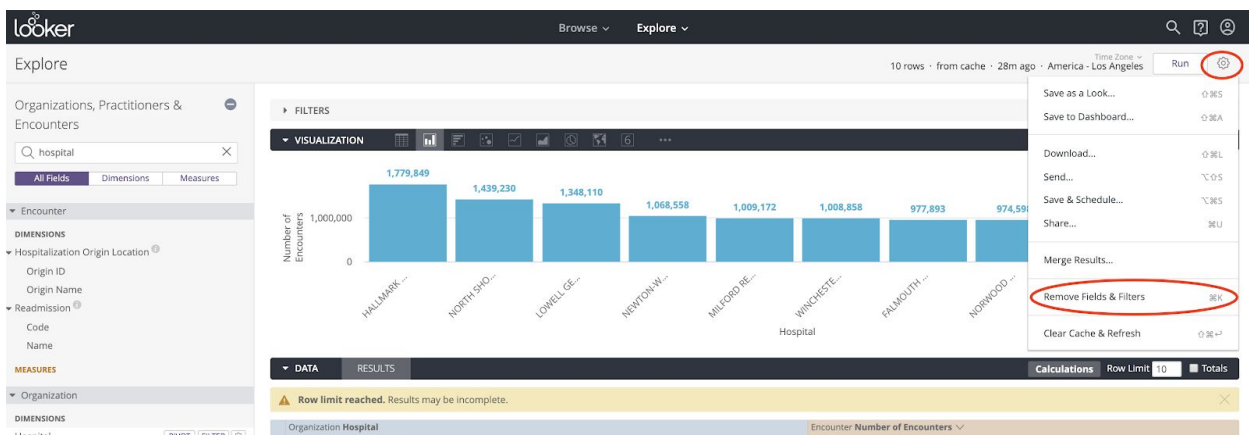
Congratulations! You now have all of the data that you need to answer your question. It's time to interpret the results. It is clear to see from the data that Hallmark Health System has the **most encounters**. Visualizing these results can make it very easy to share your findings with others.

To visualize the data set, use the visualization pane to select a chart. You can then make additional adjustments to the visualization by using the **Edit menu** in the upper right corner of the visualization pane.



Now you might want to dig a bit deeper to find out more information about the types of encounters at the Hallmark Health System Hospital.

Let's clear the canvas to ask a new question by clicking on the Gear sign in the top right hand corner and clicking **Remove Fields and Filters**.



You can start to investigate what types of encounters are accounting for the admissions to Hallmark Health System. You want to look at Number of Encounters by Admission Month and Code Name.

To focus on only the Hallmark Health System Hospital, you need to apply a Hospital filter. To do this you **hover** over the Hospital dimension and **click on Filter** to add a filter into the Filter pane of the Explore. You can then type in Hallmark Hospital System so that the filter reads “Hospital is equal to Hallmark Health System”.

Looker Explore interface showing the initial setup. The left sidebar shows the 'Hospital' dimension under the 'Organization' category, with a red circle and an arrow pointing to the 'FILTER' button. The top right shows the 'FILTERS (1)' pane with a filter for 'Organization Hospital' set to 'is equal to' 'HALLMARK HEALTH SYSTEM'. The main visualization area is empty with the text 'No Dimension will appear because we have not chosen our new categories yet' and 'Select some dimensions or measures.'

You now want to select Admission Month Name and Number of Encounters. This will show us the Number of Encounters by Admission Month for only the Hallmark Health System hospital.

Looker Explore interface showing the results of the query. The left sidebar shows the 'Month Name' dimension under the 'Admission Date' category, with a red circle and an arrow pointing to the 'Pivot' button. The top right shows the 'FILTERS (1)' pane with a filter for 'Organization Hospital' set to 'is equal to' 'HALLMARK HEALTH SYSTEM'. The main visualization area shows a table with columns 'Encounter Admission Month Name' and 'Encounter Number of Encounters'. The table contains 12 rows of data for each month of the year.

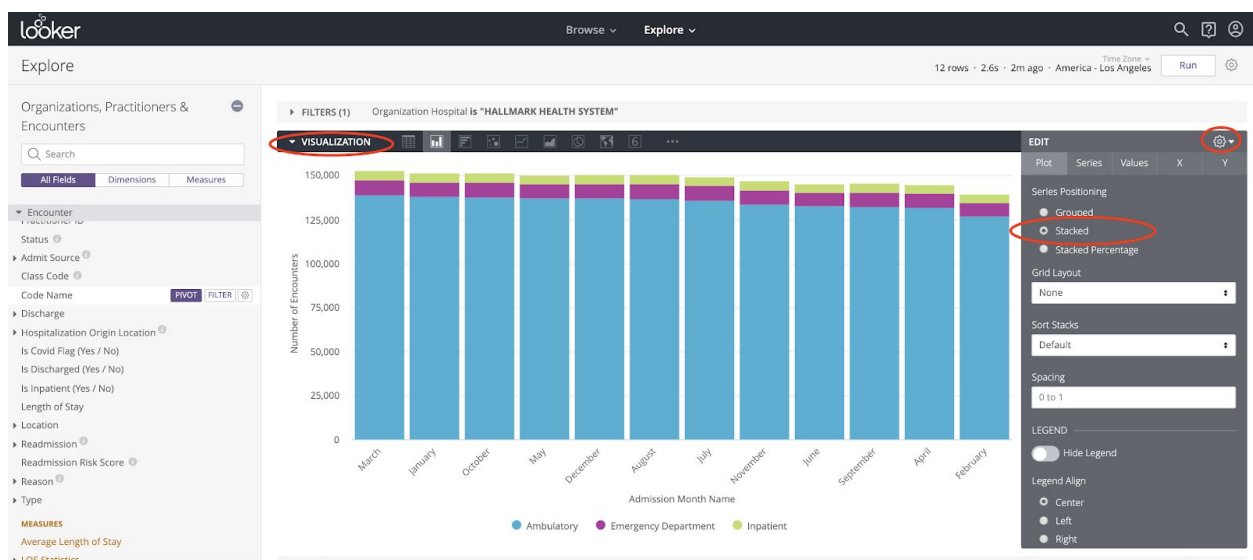
Encounter Admission Month Name	Encounter Number of Encounters
1 March	152,694
2 October	151,659
3 January	151,643
4 December	150,835
5 August	150,817
6 May	150,410
7 July	149,450
8 November	147,137
9 September	145,543
10 June	145,379
11 April	144,841
12 February	139,441

Lastly, you also want to look at this by Code Name. Since this is our second dimension, we may want to see each Code Name as a separate column. In order to do this, we can **Pivot** on Code Name. To do this **hover** over Code Name and click **Pivot**. Then Run this again so we can get our results.

Looker Explore interface showing a pivot table. The left sidebar shows the 'Code Name' field with the 'Pivot' button circled in red. The main table displays encounter data grouped by month and department.

Encounter	Admission Month Name	Ambulatory	Emergency Department	Inpatient	
1	March	139,103	8,382	8,382	5,209
2	January	138,246	8,103	8,103	5,294
3	October	137,774	8,325	8,325	5,560
4	May	137,196	8,163	8,163	5,051
5	December	137,163	8,234	8,234	5,438
6	August	137,039	8,139	8,139	5,639
7	July	136,130	8,212	8,212	5,108
8	November	133,829	8,067	8,067	5,241
9	June	132,633	7,801	7,801	4,945
10	September	132,346	7,911	7,911	5,286
11	April	131,818	8,029	8,029	4,994
12	February	126,962	7,710	7,710	4,769

You now have the data set, so it's time to interpret the results. Looking at data across multiple dimensions may indicate that we would like to visualize this with a stacked bar chart.

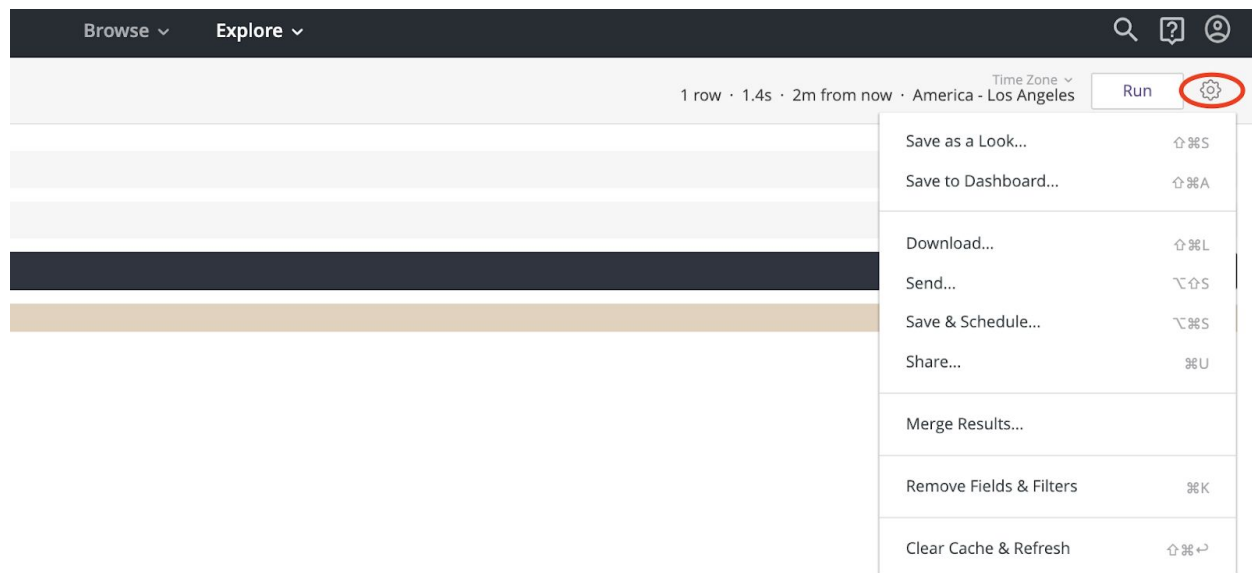


It's easy to see from the chart that Ambulatory Encounters were by far the most prominent admission type at Hallmark Health System, and that is pretty consistent every month of the year. Perhaps Hallmark Health System will now make sure that more staff and ambulances are available to serve the community.

Let's Share our Findings:

It's easy to save, share and collaborate on our findings. Here are a few ways we can do that.

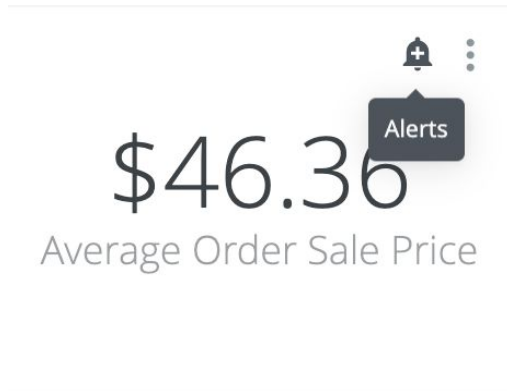
Click on the **Gear sign in the top right corner** and you will see the following options:



1. Save
 - a. Dashboard - Save directly to a dashboard. It will only live on that dashboard.
 - b. Look - Save as an individual report. Can then be added to multiple dashboards.
2. Send and Schedule
 - a. Share URL -You can copy/paste the URL from the browser URL bar and send.
 - b. Send - One time send to an external application (i.e. email, slack, etc...)
 - c. Save & Schedule - Set up a schedule to automatically update and send the report. This can be on a time cadence or when a specific condition is met.

Set up Alerts:

Set up an alert on the data so you can proactively be alerted when a condition is met. On any tile on a dashboard, **hover** over the tile and click on the **Alerts Bell**. You can then specify the conditions around your alert.

A screenshot of the Looker alert configuration modal. The modal title is "'Average Sale Price' is greater than ...". It contains several sections: 'Condition' with a dropdown for 'Average Sale Price', a comparison operator 'Is greater than', and a text input 'Enter a value'; 'Where to send it' with an 'Email' dropdown and a list containing 'shelley@looker.com'; 'Frequency' with a 'Daily' dropdown and a '5am' dropdown; and 'Permissions' with a dropdown set to 'Visible to everyone in your organization (Public)'. At the bottom right are 'Cancel' and 'Save Alert' buttons. The background shows a blurred chart and a sidebar with a price scale from \$50K to \$400K.

Now you know how to keep asking and keep digging! Who knows what you'll uncover.

Additional Practice:

Try asking and answering these questions:

1. How many total patients were treated in the past year?
2. What are the Length of Stay (LOS) percentiles?
3. What is the breakdown of the number of encounters by age tier and code name in the past year?
4. What age group and gender account for the highest number of patients?
5. How many At Risk Patients were discharged in the past week? (Hint use Readmission Risk Score)

Answers:

1. <https://trial.looker.com/x/lvd6tR5XDGSjmTn9jHQ0z7>
2. <https://trial.looker.com/x/mQt4EpzUJTvvK9pQliP6yX>
3. <https://trial.looker.com/x/ylZQJCBAXtEvyKGyG9GIYf>
4. <https://trial.looker.com/x/KaUK7DKIBr1XgrUJG4v4k5>
5. <https://trial.looker.com/x/sL5liYKvU6v0ISsNsEO8mL>

More Resources:

[Viewing Dashboards Guide](#)

[Viewing Individual Visualization Guide](#)

[Data Consumer Training](#)

[Building Reports Training](#)

[Looker User Guide](#)