

# Healthcare Analysis using SQL

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DataSet used : [Health Care](#)

DataBase Used : **SQLiteStudio (3.4.1)**

In this project i am trying uncover the following objectives :

- 1 - What is the length of time patients are staying in the hospital?
- 2 - Is there a racial bias for the amount of lab procedures patients receive?
- 3- Which departments perform the most lab procedures?
- 4- Do lab procedures mean longer stays in the hospital?
- 5- When patients discharge, do they readmit to the hospital in under 30 days?
- 6- Are any of these returning patients (>30 days) coming through the emergency room?

## ANALYSIS:

1 - What is the length of time patients are staying in the hospital?

Query

History

```

1 SELECT
2     race,
3     AVG(time_in_hospital) AS 'average time in Hospital'
4 FROM
5     'diabetics'
6 GROUP BY
7     race
8 ORDER BY
9     AVG(time_in_hospital) DESC

```

Grid view

Form view

1

Total rows loaded: 6

	race	average time in Hospital
1	AfricanAmerican	4.50786048932847
2	Caucasian	4.38572123155363
3	?	4.28948526176859
4	Other	4.27357237715803
5	Hispanic	4.05989199803633
6	Asian	3.99531981279251

2 - Is there a racial bias for the amount of lab procedures patients receive?

Query

History

1 SELECT

2     race AS RACE,

3     AVG(num\_lab\_procedures) AS ' AVERAGE NO OF PROCEDURES'

4 FROM

5     'diabetics'

6 GROUP BY






7     race

8 ORDER BY




9     AVG(num\_lab\_procedures) DESC

Grid view

Form view



1



Total rows loaded: 6

	RACE	AVERAGE NO OF PROCEDURES
1	?	44.10470743510778
2	AfricanAmerican	44.08505986465383
3	Other	43.43691899070385
4	Caucasian	42.83294130014849
5	Hispanic	42.793323514973
6	Asian	41.21216848673947

### 3- Which departments perform the most lab procedures?


Query


History


```
1 SELECT
2     medical_specialty,
3     COUNT(*) AS 'Total no of procedures',
4     ROUND(AVG(num_lab_procedures),1) AS 'Average number of Lab Procedure'
5 FROM
6     'diabetics'
7 GROUP BY
8     medical_specialty
9 ORDER BY
10    COUNT(*) DESC
11 LIMIT 10
12
```


Grid view


Form view














1







Total rows loaded: 10

	medical_specialty	Total no of procedures	Average number of Lab Procedure
1	?	49949	43.3
2	InternalMedicine	14635	49.5
3	Emergency/Trauma	7565	42.5
4	Family/GeneralPractice	7440	42.9
5	Cardiology	5352	43
6	Surgery-General	3099	38
7	Nephrology	1613	43.3
8	Orthopedics	1400	29.2
9	Orthopedics-Reconstructive	1233	33
10	Radiologist	1140	31

### 4- Do lab procedures mean longer stays in the hospital?

Query

History

```

1 SELECT
2     AVG(time_in_hospital) AS 'AVG TIME IN HOSPITAL',
3     CASE
4         WHEN num_lab_procedures <=50 THEN 'There are few no of Lab procedures required'
5         WHEN num_lab_procedures >=50 and num_lab_procedures <=90 THEN 'There are average no of lab procedures required'
6         ELSE 'There are many no of Lab procedures required'
7     END AS PROBABILITY
8 FROM
9     diabetics
10 GROUP BY
11     PROBABILITY
12 ORDER BY
13     AVG(time_in_hospital) DESC
14

```

Grid view

Form view

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Total rows loaded: 3

	AVG TIME IN HOSPITAL	PROBABILITY
1	8.40281030444965	There are many no of lab procedures required
2	5.43817416111941	There are average no of lab procedures required
3	3.77509529860229	There are few no of lab procedures required

## 5- When patients discharge, do they readmit to the hospital in under 30 days?


Query


History


```
1 SELECT
2     patient_nbr AS 'PATIENT NUMBER',
3     race AS RACE,
4     time_in_hospital AS 'PATIENTS DURATION IN HOSPITAL',
5     num_lab_procedures AS 'NUMBER OF PROCEDURES'
6
7 FROM
8     diabetics
9 WHERE
10     readmitted='>30'
11 ORDER BY
12     time_in_hospital DESC LIMIT 30
13
```


Grid view


Form view














1







Total rows loaded: 30

	PATIENT NUMBER	RACE	PATIENTS DURATION IN HOSPITAL	NUMBER OF PROCEDURES
1	3377124	Caucasian	14	41
2	541134	Caucasian	14	71
3	1147545	Caucasian	14	71
4	60354486	Caucasian	14	43
5	101398734	Caucasian	14	60
6	7991397	Caucasian	14	71
7	292419	Caucasian	14	61
8	84232449	AfricanAmerican	14	65
9	2728458	AfricanAmerican	14	71
10	2749761	Caucasian	14	63
11	1144719	AfricanAmerican	14	60
12	4876191	AfricanAmerican	14	90
13	69827121	Other	14	45
14	231237	Caucasian	14	55
15	8812899	Caucasian	14	54

Query		History
<pre> 1 SELECT 2     MAX(time_in_hospital), 3     AVG( time_in_hospital)s 4 FROM 5     diabetics </pre>		
Grid view		Form view
1		Tota
	MAX(time_in_hospital)	AVG(time_in_hospital)
1	14	4.39598687184325

Query		History
<pre> 1 SELECT 2     MAX(num_lab_procedures), 3     AVG( num_lab_procedures) 4 FROM 5     diabetics </pre>		
Grid view		Form view
1		Total rows
	MAX(num_lab_procedures)	AVG(num_lab_procedures)
1	132	43.09564098028811

6- Are any of these returning patients (>30 days) coming through the emergency room?

Query		History
<pre> 1 SELECT 2   patient_nbr AS 'PATIENT NUMBER' 3 FROM 4   diabetics 5 WHERE 6   readmitted='&gt;30' and admission_type_id=1 7 </pre>		
Grid view		Form view
		Total rows loaded: 19309
	PATIENT NUMBER	
1	55629189	
2	114882984	
3	89869032	
4	107389323	
5	115196778	
6	18196434	
7	96664626	
8	80845353	
9	63023292	
10	112002975	

7- Is there any gender bias for the amount of lab procedures patients receive and if they affect time duration in hospital?

Query

History

```

1
2 SELECT
3     gender as GENDER,
4     COUNT(*) AS 'Total',
5     ROUND(AVG(num_lab_procedures),1) AS 'Average number of Lab Procedure',
6     ROUND(AVG(time_in_hospital),1) AS 'Average time in hospital'
7 FROM
8     'diabetics'
9 GROUP BY
10    gender
11

```

Grid view

Form view

1

Total rows loaded: 3

	GENDER	Total	Average number of Lab Procedure	Average time in hospital
1	Female	54708	43.2	4.5
2	Male	47055	43	4.3
3	Unknown/Invalid	3	34	3.3

