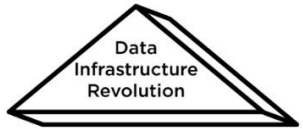
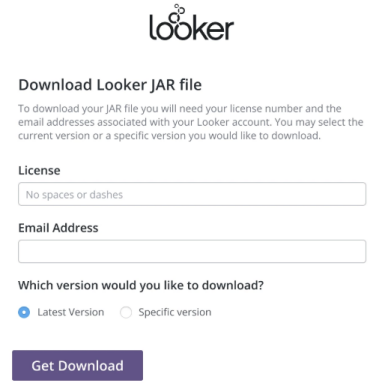
Fighting Opioid Fraud with Data Analytics

Tom Skarzynski
Enterprise Sales
Looker (Google Cloud)

looker

looker





YAHOO! amazon facebook NBC UNIVERSAL

UBER King Disney turner

IBM STAPLES Spotify verizon

Blue Apron The Economist intel

SONY STATE STREET LexisNexis wework

Cigna DaVita Kidney Care

GREENVILLE HEALTH SYSTEM AGFA HealthCare PDX

Abbott CMS

Centegra HealthSystem ALWAYS LOOKING AHEAD

McKESSON Counsyl

BI Today

Investigator: We got an anonymous tip on a beneficiary… I'd get a warrant but my report said they're not a doctor shopper. Can you double-check?

BI Analyst: They are not a doctor shopper

Okay… have they overdosed?

Yes

How many times?

3

*3 overdoses? What's their average MED?**

400

How many doctors have they seen?

8

Eight?! How are they not a doctor shopper?

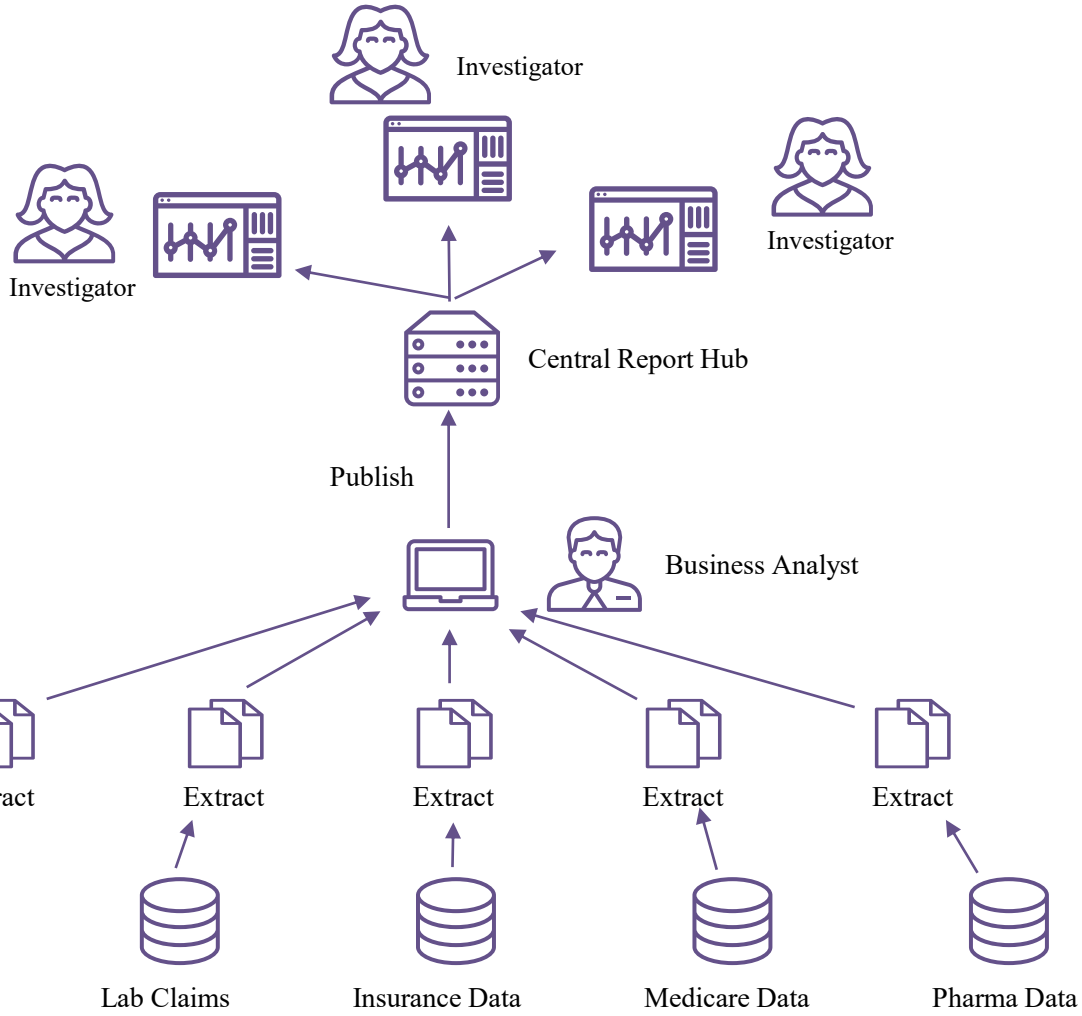
I don't know…

…Turns out the doctor shopper flag requires 3+ doctors and 2+ pharmacies. This guy only went to 1 pharmacy.

looker

*Morphine Equivalent Dosage – 125 is high

BI Today



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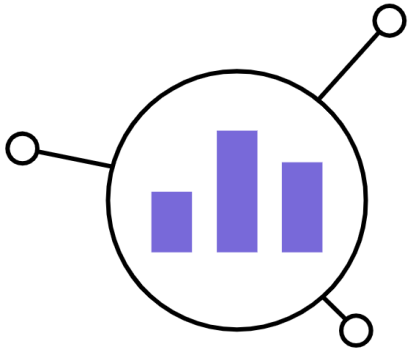
Why is true self-service hard?

1 *Databases were slow, expensive; healthcare deals in big data*



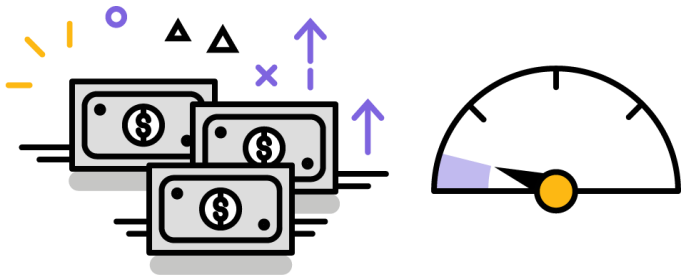
2 *SQL (the language to ask questions) is archaic; healthcare has difficult KPIs*

3 *Vanity dashboards are not enough for healthcare end consumers*

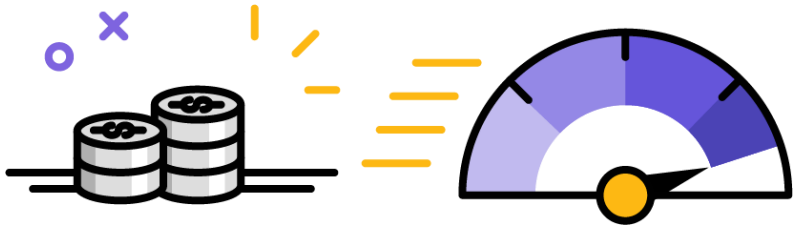
looker

Big Data Solved #1

Then



Now



Google Cloud

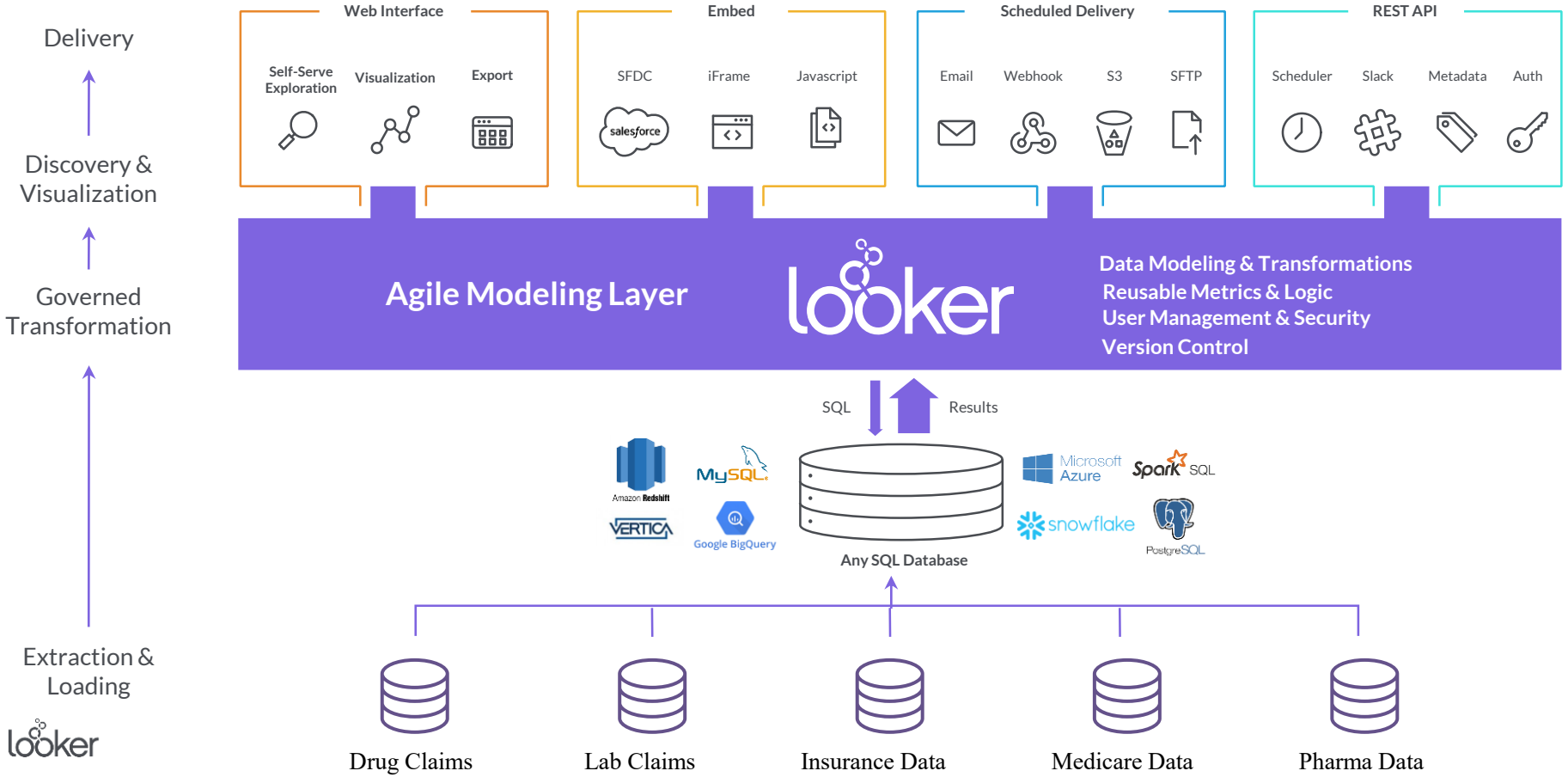
IBM Watson

aws

snowflake

MEMSQL

Looker Solved #2 & #3



looker Home Browse Explore Develop Admin

Opioid Fraud

01 - Overall Dashboard

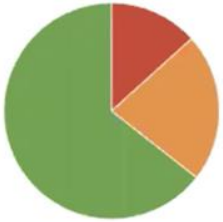
3d ago Run Edit

FILTERS City is "Orlando"

newwave

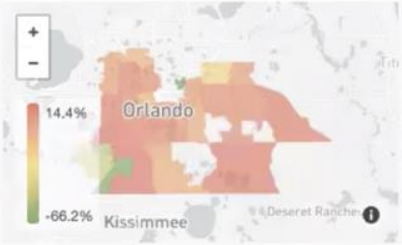
CMS.gov HHS OIG Source

Doctor by Risk Status



High Risk 13.33%
Med Risk 22.22%
Low Risk 64.44%

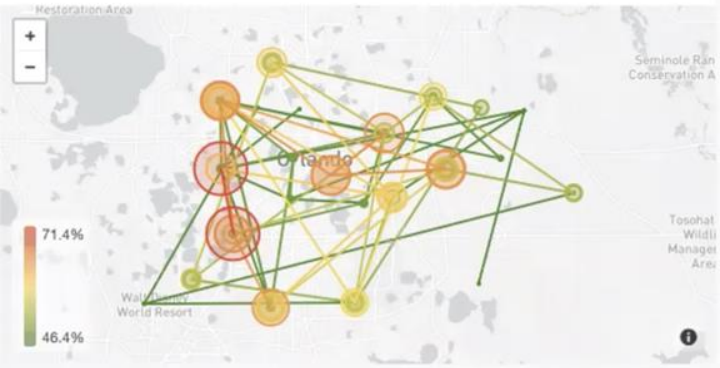
Risk by Zip



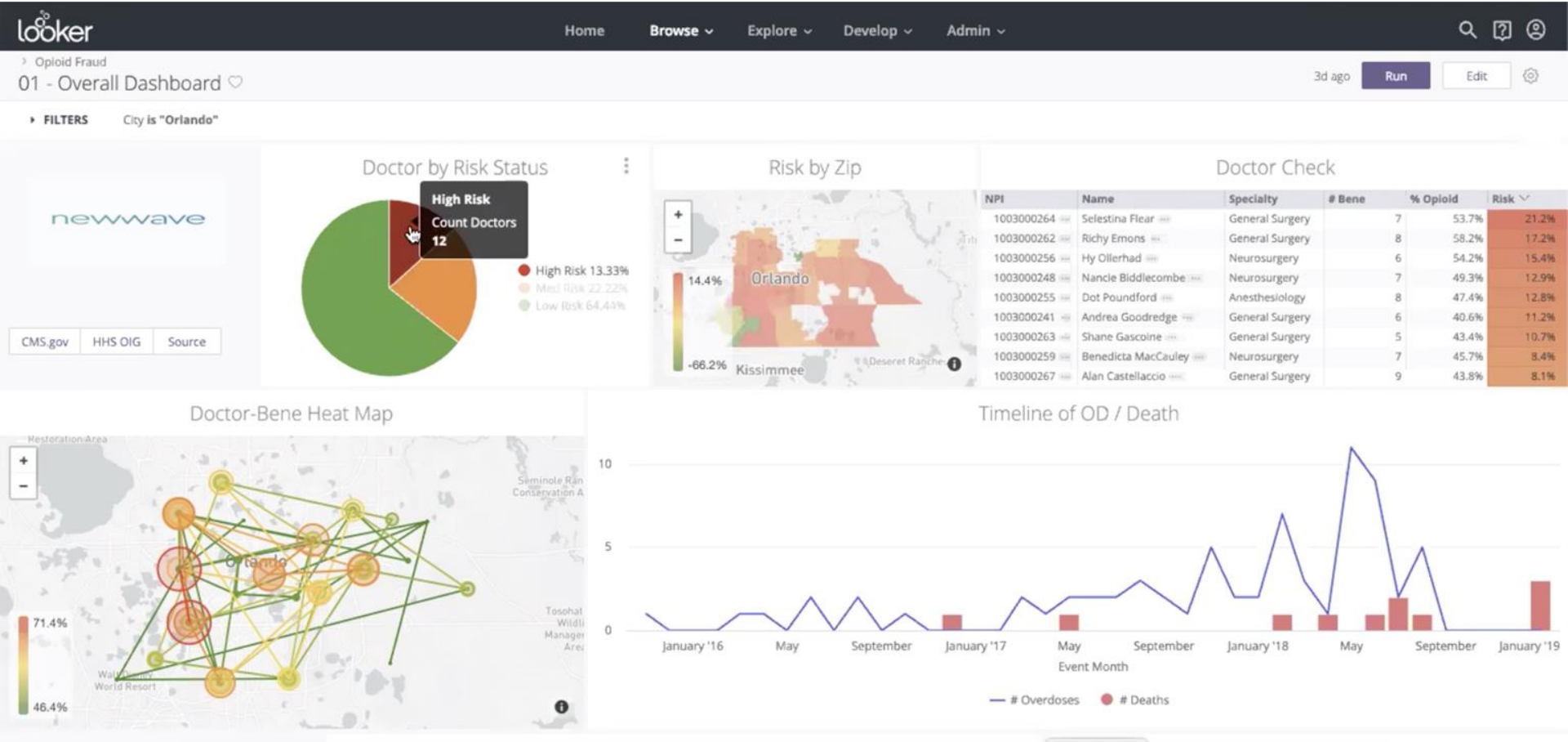
Doctor Check

NPI	Name	Specialty	# Bene	% Opioid	Risk
1003000264	Selestina Flear	General Surgery	7	53.7%	21.2%
1003000262	Richy Emons	General Surgery	8	58.2%	17.2%
1003000256	Hy Ollerhad	Neurosurgery	6	54.2%	15.4%
1003000248	Nancie Biddlecombe	Neurosurgery	7	49.3%	12.9%
1003000255	Dot Poundford	Anesthesiology	8	47.4%	12.8%
1003000241	Andrea Goodredge	General Surgery	6	40.6%	11.2%
1003000263	Shane Gascoine	General Surgery	5	43.4%	10.7%
1003000259	Benedicta MacCauley	Neurosurgery	7	45.7%	8.4%
1003000267	Alan Castellaccio	General Surgery	9	43.8%	8.1%

Doctor-Bene Heat Map



Timeline of OD / Death

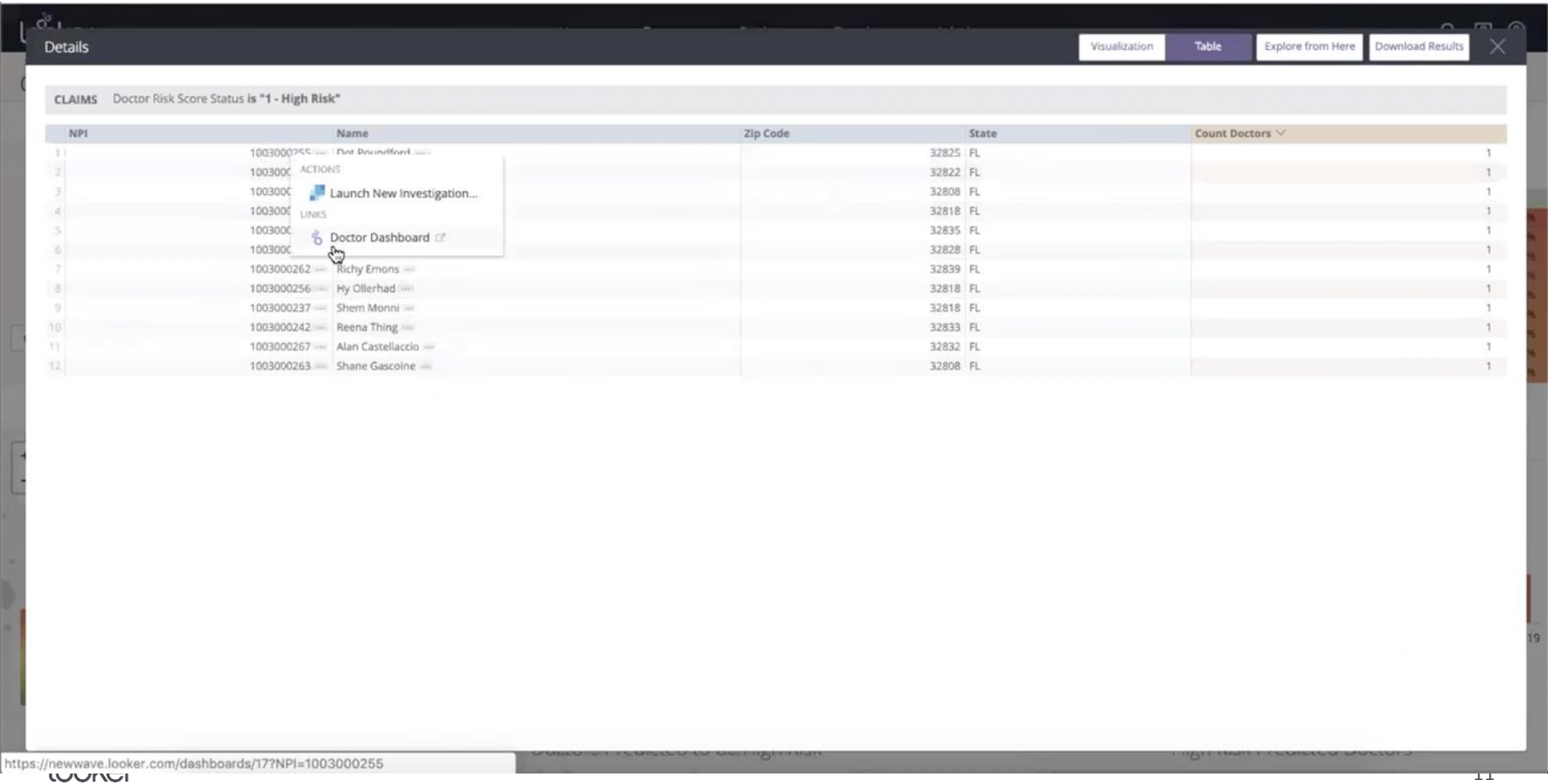

looker
Home
Browse
Explore
Develop
Admin
Opioid Fraud
01 - Overall Dashboard
3d ago
Run
Edit
FILTERS
City is "Orlando"
newwave
CMS.gov
HHS OIG
Source
Doctor by Risk Status
High Risk
Count Doctors
12
High Risk 13.33%
Med Risk 22.22%
Low Risk 64.44%
Risk by Zip
14.4%
-66.2%
Orlando
Kissimmee
Doctor Check
NPI
Name
Specialty
Bene
% Opioid
Risk
1003000264 Selestina Flear General Surgery 7 53.7% 21.2%
1003000262 Richy Emons General Surgery 8 58.2% 17.2%
1003000256 Hy Ollerhad Neurosurgery 6 54.2% 15.4%
1003000248 Nancie Biddlecombe Neurosurgery 7 49.3% 12.9%
1003000255 Dot Poundford Anesthesiology 8 47.4% 12.8%
1003000241 Andrea Goodredge General Surgery 6 40.6% 11.2%
1003000263 Shane Gascoine General Surgery 5 43.4% 10.7%
1003000259 Benedicta MacCauley Neurosurgery 7 45.7% 8.4%
1003000267 Alan Castellaccio General Surgery 9 43.8% 8.1%
Doctor-Bene Heat Map
71.4%
46.4%
Orlando
Timeline of OD / Death
10
5
0
January '16
May
September
January '17
May
September
January '18
May
September
January '19
Event Month
Overdoses
Deaths

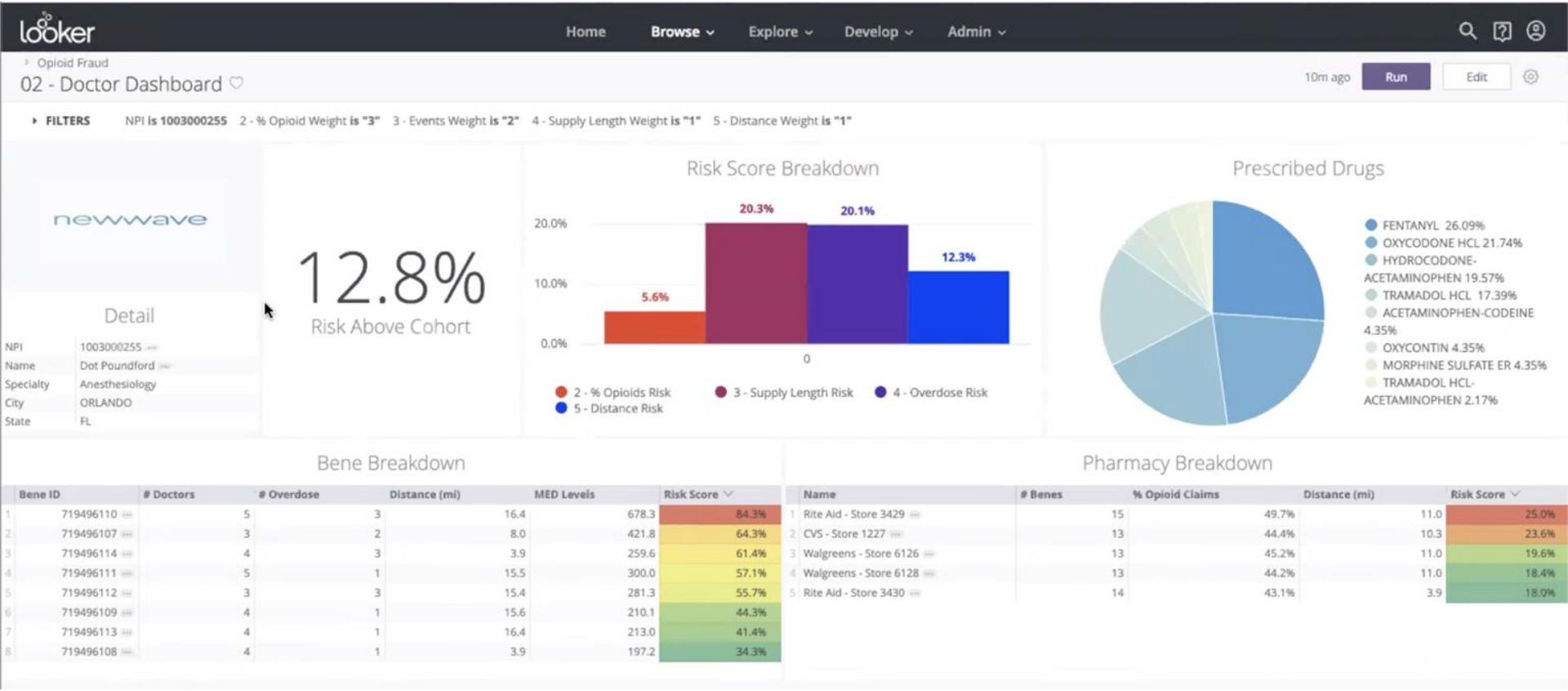
Details

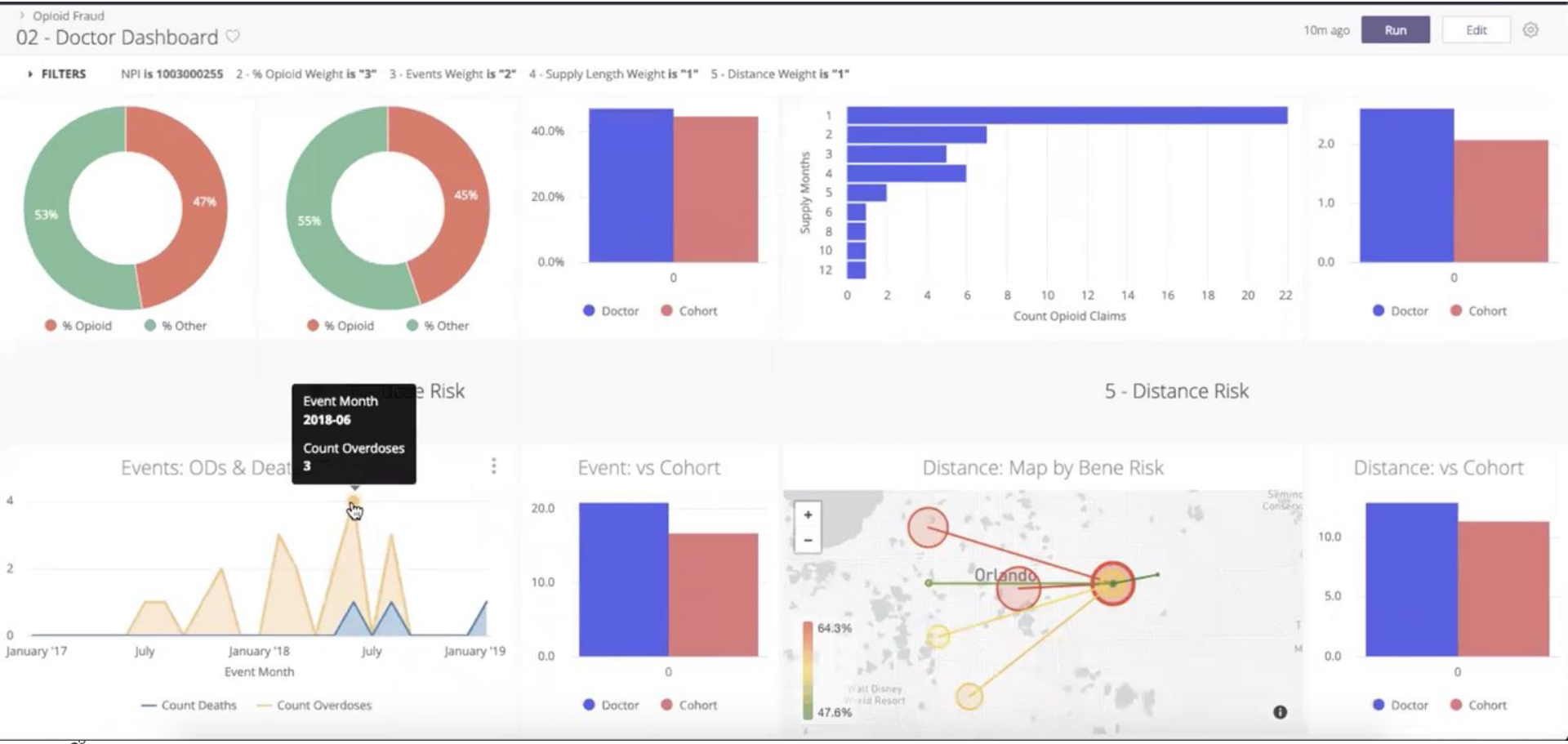
Visualization | Table | Explore from Here | Download Results

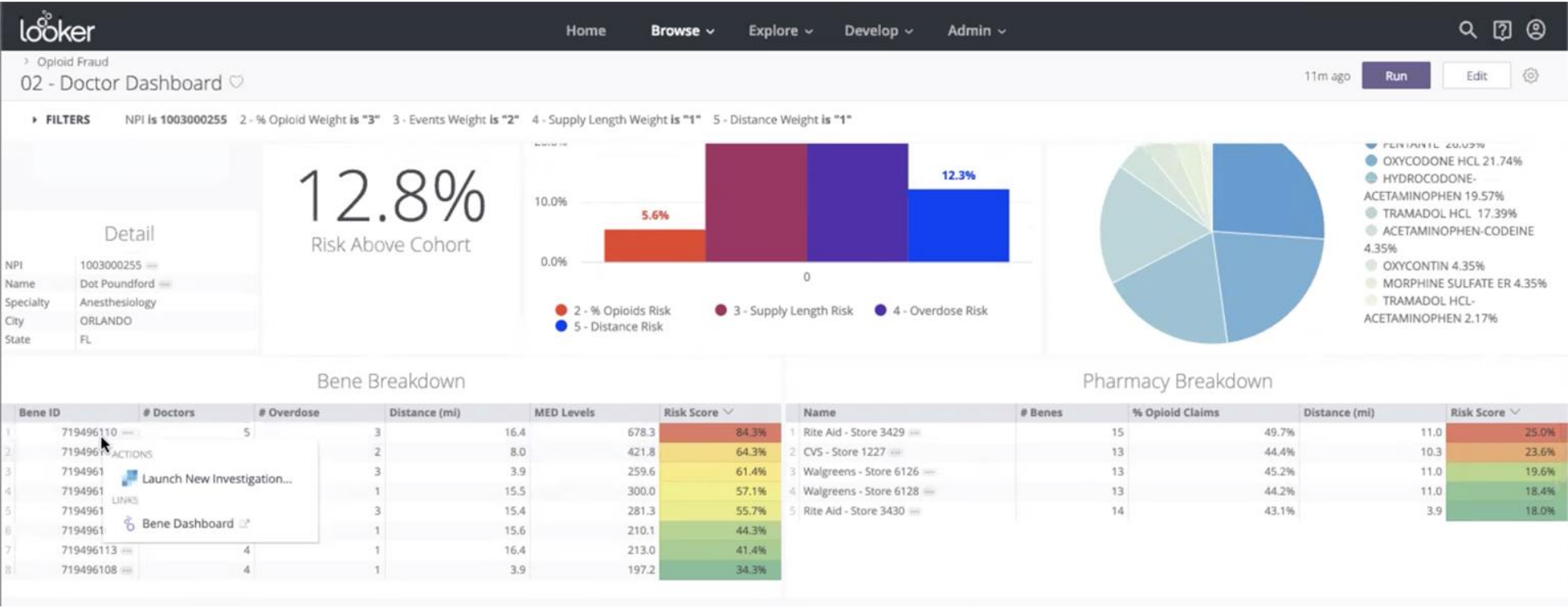
CLAIMS Doctor Risk Score Status **is "1 - High Risk"**

	NPI	Name	Zip Code	State	Count Doctors
1	1003000255	Dot Poundford	32825	FL	1
2	1003000264	Selestina Flear	32822	FL	1
3	1003000241	Andrea Goodredge	32808	FL	1
4	1003000259	Benedicta MacCauley	32818	FL	1
5	1003000266	Tamqrah Cutcliffe	32835	FL	1
6	1003000248	Nancie Biddlecombe	32828	FL	1
7	1003000262	Richy Emons	32839	FL	1
8	1003000256	Hy Ollerhad	32818	FL	1
9	1003000237	Shern Monni	32818	FL	1
10	1003000242	Reena Thing	32833	FL	1
11	1003000267	Alan Castellaccio	32832	FL	1
12	1003000263	Shane Gascoine	32808	FL	1


Details
Visualization
Table
Explore from Here
Download Results
CLAIMS Doctor Risk Score Status is "1 - High Risk"
NPI
Name
Zip Code
State
Count Doctors
ACTIONS
Launch New Investigation...
LINKS
Doctor Dashboard
1003000262 Richy Emons 32839 FL 1
1003000256 Hy Ollerhad 32818 FL 1
1003000237 Shem Monni 32818 FL 1
1003000242 Reena Thing 32833 FL 1
1003000267 Alan Castellaccio 32832 FL 1
1003000263 Shane Gascoine 32808 FL 1
https://newwave.looker.com/dashboards/17?NPI=1003000255


looker
Home
Browse
Explore
Develop
Admin
Opioid Fraud
02 - Doctor Dashboard
10m ago
Run
Edit
FILTERS
NPI is 1003000255
2 - % Opioid Weight is "3"
3 - Events Weight is "2"
4 - Supply Length Weight is "1"
5 - Distance Weight is "1"
newwave
Detail
NPI 1003000255
Name Dot Poundford
Specialty Anesthesiology
City ORLANDO
State FL
12.8%
Risk Above Cohort
Risk Score Breakdown
20.0%
10.0%
0.0%
5.6%
20.3%
20.1%
12.3%
0
2 - % Opioids Risk
3 - Supply Length Risk
4 - Overdose Risk
5 - Distance Risk
Prescribed Drugs
FENTANYL 26.09%
OXYCODONE HCL 21.74%
HYDROCODONE-ACETAMINOPHEN 19.57%
TRAMADOL HCL 17.39%
ACETAMINOPHEN-CODEINE 4.35%
OXYCONTIN 4.35%
MORPHINE SULFATE ER 4.35%
TRAMADOL HCL-ACETAMINOPHEN 2.17%
Bene Breakdown
Bene ID # Doctors # Overdose Distance (mi) MED Levels Risk Score
719496110 5 3 16.4 678.3 84.3%
719496107 3 2 8.0 421.8 64.3%
719496114 4 3 3.9 259.6 61.4%
719496111 5 1 15.5 300.0 57.1%
719496112 3 3 15.4 281.3 55.7%
719496109 4 1 15.6 210.1 44.3%
719496113 4 1 16.4 213.0 41.4%
719496108 4 1 3.9 197.2 34.3%
Pharmacy Breakdown
Name # Benes % Opioid Claims Distance (mi) Risk Score
Rite Aid - Store 3429 15 49.7% 11.0 25.0%
CVS - Store 1227 13 44.4% 10.3 23.6%
Walgreens - Store 6126 13 45.2% 11.0 19.6%
Walgreens - Store 6128 13 44.2% 11.0 18.4%
Rite Aid - Store 3430 14 43.1% 3.9 18.0%


Opioid Fraud
02 - Doctor Dashboard
10m ago
Run
Edit
FILTERS
NPI is 1003000255
2 - % Opioid Weight is "3"
3 - Events Weight is "2"
4 - Supply Length Weight is "1"
5 - Distance Weight is "1"
53%
47%
% Opioid
% Other
55%
45%
% Opioid
% Other
40.0%
20.0%
0.0%
0
Doctor
Cohort
Supply Months
1
2
3
4
5
6
8
10
12
0
2
4
6
8
10
12
14
16
18
20
22
Count Opioid Claims
2.0
1.0
0.0
0
Doctor
Cohort
5 - Distance Risk
Event Month
2018-06
Count Overdoses
3
Events: ODs & Deat
4
2
0
January '17
July
January '18
July
January '19
Event Month
Count Deaths
Count Overdoses
Event: vs Cohort
20.0
10.0
0.0
0
Doctor
Cohort
Distance: Map by Bene Risk
Orlando
64.3%
47.6%
Distance: vs Cohort
10.0
5.0
0.0
0
Doctor
Cohort


looker
Home
Browse
Explore
Develop
Admin
Opioid Fraud
02 - Doctor Dashboard
11m ago
Run
Edit
FILTERS
NPI is 1003000255
2 - % Opioid Weight is "3"
3 - Events Weight is "2"
4 - Supply Length Weight is "1"
5 - Distance Weight is "1"
Detail
NPI 1003000255
Name Dot Poundford
Specialty Anesthesiology
City ORLANDO
State FL
12.8%
Risk Above Cohort
10.0%
0.0%
5.6%
12.3%
0
2 - % Opioids Risk
3 - Supply Length Risk
4 - Overdose Risk
5 - Distance Risk
OXYCODONE HCL 21.74%
HYDROCODONE-ACETAMINOPHEN 19.57%
TRAMADOL HCL 17.39%
ACETAMINOPHEN-CODEINE 4.35%
OXYCONTIN 4.35%
MORPHINE SULFATE ER 4.35%
TRAMADOL HCL-ACETAMINOPHEN 2.17%
Bene Breakdown
Bene ID
Doctors
Overdose
Distance (mi)
MED Levels
Risk Score
719496110 5 3 16.4 678.3 84.3%
719496 2 8.0 421.8 64.3%
7194961 3 3.9 259.6 61.4%
7194961 1 15.5 300.0 57.1%
7194961 3 15.4 281.3 55.7%
7194961 1 15.6 210.1 44.3%
719496113 4 1 16.4 213.0 41.4%
719496108 4 1 3.9 197.2 34.3%
ACTIONS
Launch New Investigation...
LINKS
Bene Dashboard
Pharmacy Breakdown
Name
Benes
% Opioid Claims
Distance (mi)
Risk Score
1 Rite Aid - Store 3429 15 49.7% 11.0 25.0%
2 CVS - Store 1227 13 44.4% 10.3 23.6%
3 Walgreens - Store 6126 13 45.2% 11.0 19.6%
4 Walgreens - Store 6128 13 44.2% 11.0 18.4%
5 Rite Aid - Store 3430 14 43.1% 3.9 18.0%

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Opioid Fraud

03 - Bene Dashboard

3d ago Run Edit

FILTERS Bene ID **is 719496110** 2 - MED Weight **is "3"** 3 - Doc Shop Weight **is "2"** 4 - OD Weight **is "1"** 5 - Distance Weight **is "1"**

newwave

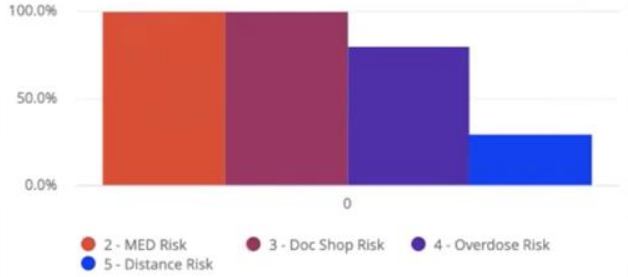
Detail

Beneficiary **Bene ID**	719496110
Beneficiary **Name**	Miner Gregine
Beneficiary **City**	ORLANDO
Beneficiary **State**	FL
Beneficiary **Zip Code**	32818

87.1%

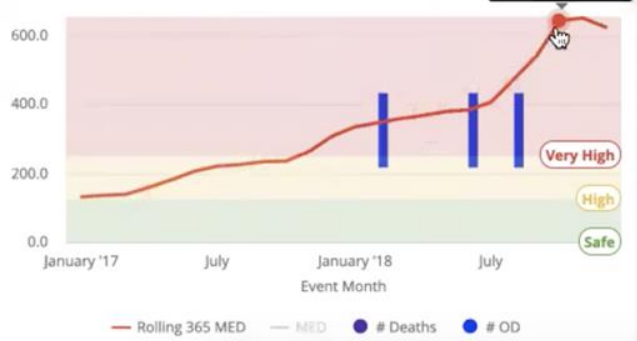
Risk Score

Risk Breakdown



Distance: Map by Prescriber Risk

MED & Overdoses: Over Time



Doctor Breakdown

	NPI	# Benes	# Overdose	Distance (mi)	Risk
1	1003000256	6	12	0.0	15.4%
2	1003000255	8	18	16.4	12.8%
3	1003000257	9	17	14.7	4.5%
4	1003000254	8	17	0.0	-0.5%
5	1003000253	9	14	11.6	-9.7%

Pharmacy Breakdown

	Pharmacy Name	# Benes	% Opioid Claims	Distance (mi)	Risk Score
1	Rite Aid - Store 3429	15	49.7%	5.5	25.0%
2	CVS - Store 1227	13	44.4%	10.6	23.6%
3	Walgreens - Store 6128	13	44.2%	8.4	18.4%
4	Rite Aid - Store 3430	14	43.1%	19.8	18.0%

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Opioid Fraud

03 - Bene Dashboard

3d ago Run Edit

FILTERS Bene ID **is 719496110** 2 - MED Weight **is "3"** 3 - Doc Shop Weight **is "2"** 4 - OD Weight **is "1"** 5 - Distance Weight **is "1"**

newwave

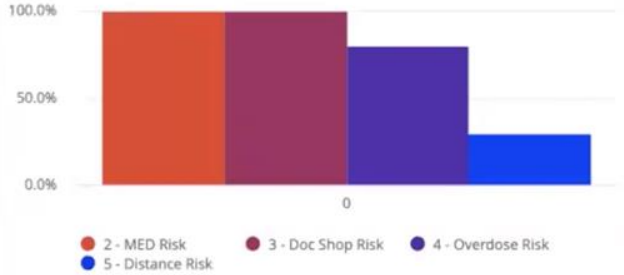
Detail

Beneficiary **Bene ID**	719496110
Beneficiary **Name**	Miner Gregine
Beneficiary **City**	ORLANDO
Beneficiary **State**	FL
Beneficiary **Zip Code**	32818

87.1%

Risk Score

Risk Breakdown



Distance: Map by Prescriber Risk

MED & Overdoses: Over Time

Doctor Breakdown

	NPI	# Benes	# Overdose	Distance (mi)	Risk
1	1003000256	6	12	0.0	15.4%
2	1003000255	8	18	16.4	12.8%
3	1003000257	9	17	14.7	4.5%
4	1003000254	8	17	0.0	-0.5%
5	1003000253	9	14	11.6	-9.7%

Pharmacy Breakdown

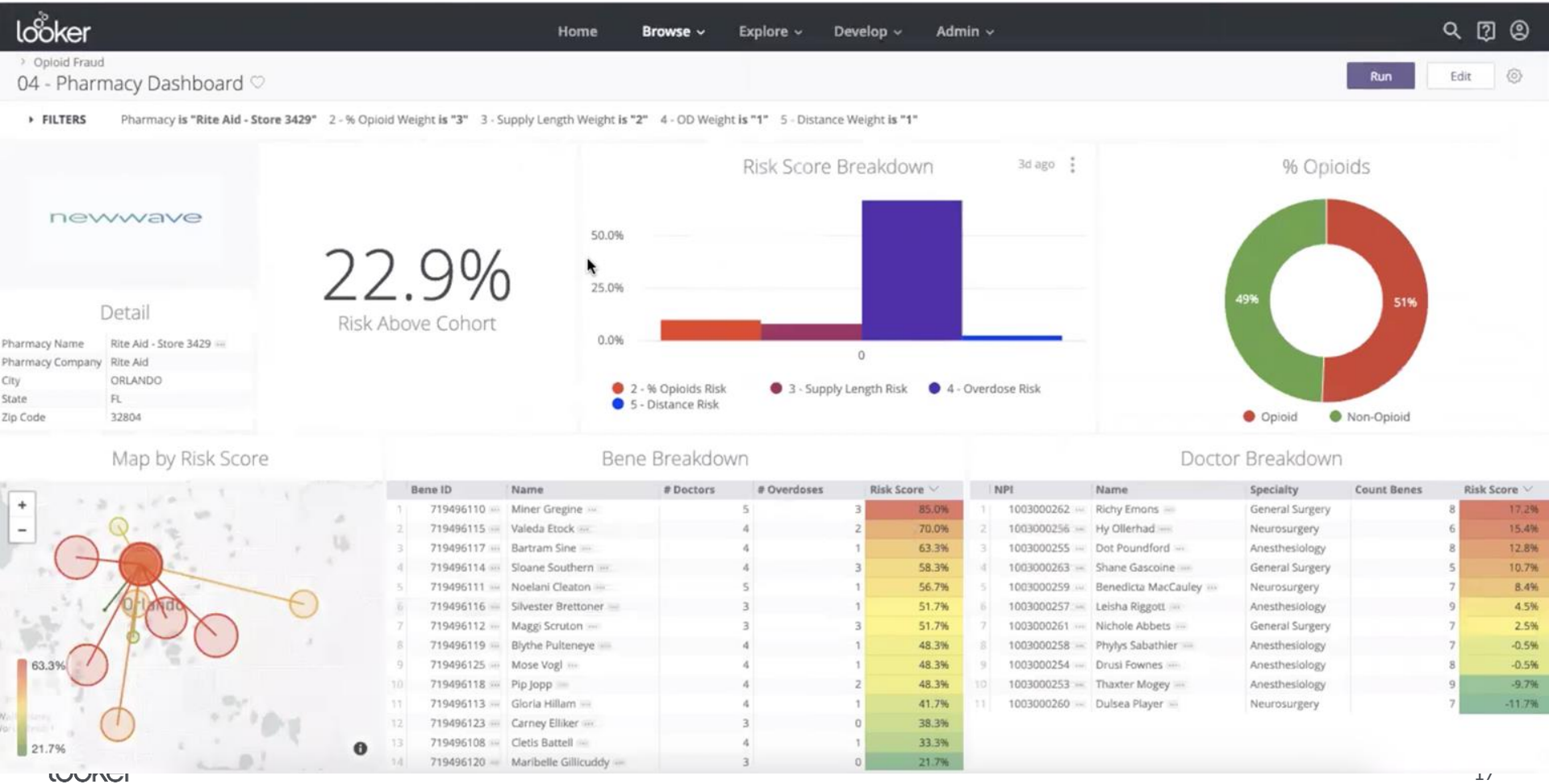
	Pharmacy Name	# Benes	% Opioid Claims	Distance (mi)	Risk Score
1	Rite Aid - Store		49.7%	5.5	25.0%
2	CVS - Store 122		44.4%	10.6	23.6%
3	Walgreens - Sto		44.2%	8.4	18.4%
4	Rite Aid - Store		43.1%	19.8	18.0%

ACTIONS

Launch New Investigation...

LINKS

Pharmacy Dashboard


looker
Home
Browse
Explore
Develop
Admin
Opioid Fraud
04 - Pharmacy Dashboard
Run
Edit
FILTERS
Pharmacy is "Rite Aid - Store 3429"
2 - % Opioid Weight is "3"
3 - Supply Length Weight is "2"
4 - OD Weight is "1"
5 - Distance Weight is "1"
newwave
Detail
Pharmacy Name Rite Aid - Store 3429
Pharmacy Company Rite Aid
City ORLANDO
State FL
Zip Code 32804
22.9%
Risk Above Cohort
Risk Score Breakdown
3d ago
50.0%
25.0%
0.0%
0
2 - % Opioids Risk
3 - Supply Length Risk
4 - Overdose Risk
5 - Distance Risk
% Opioids
49%
51%
Opioid
Non-Opioid
Map by Risk Score
Orlando
63.3%
21.7%
Bene Breakdown
Bene ID Name # Doctors # Overdoses Risk Score
719496110 Miner Gregine 5 3 85.0%
719496115 Valeda Etock 4 2 70.0%
719496117 Bartram Sine 4 1 63.3%
719496114 Sloane Southern 4 3 58.3%
719496111 Noelani Cleaton 5 1 56.7%
719496116 Silvester Brettoner 3 1 51.7%
719496112 Maggi Scruton 3 3 51.7%
719496119 Blythe Pulteneye 4 1 48.3%
719496125 Mose Vogl 4 1 48.3%
719496118 Pip Jopp 4 2 48.3%
719496113 Gloria Hillam 4 1 41.7%
719496123 Carney Elliker 3 0 38.3%
719496108 Cletis Battell 4 1 33.3%
719496120 Maribelle Gillicuddy 3 0 21.7%
Doctor Breakdown
NPI Name Specialty Count Benes Risk Score
1003000262 Richy Emons General Surgery 8 17.2%
1003000256 Hy Ollerhad Neurosurgery 6 15.4%
1003000255 Dot Poundford Anesthesiology 8 12.8%
1003000263 Shane Gascoine General Surgery 5 10.7%
1003000259 Benedicta MacCauley Neurosurgery 7 8.4%
1003000257 Leisha Riggott Anesthesiology 9 4.5%
1003000261 Nichole Abbets General Surgery 7 2.5%
1003000258 Phylys Sabathier Anesthesiology 7 -0.5%
1003000254 Drusi Fownes Anesthesiology 8 -0.5%
1003000253 Thaxter Mogey Anesthesiology 9 -9.7%
1003000260 Dulsea Player Neurosurgery 7 -11.7%

looker Home Browse Explore Develop Admin

Opioid Fraud

04 - Pharmacy Dashboard

Run Edit

FILTERS Pharmacy **is "Rite Aid - Store 3429"** 2 - % Opioid Weight **is "3"** 3 - Supply Length Weight **is "2"** 4 - OD Weight **is "1"** 5 - Distance Weight **is "1"**

newwave

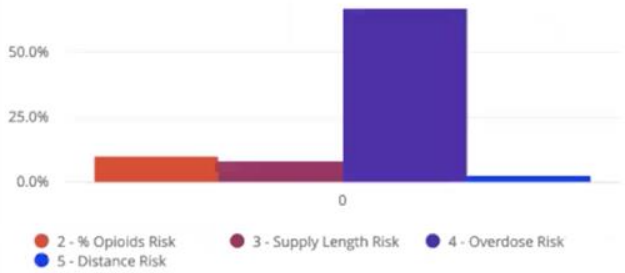
Detail

Pharmacy Name	Rite Aid - Store 3429
Pharmacy Company	Rite Aid
City	ORLANDO
State	FL
Zip Code	32804

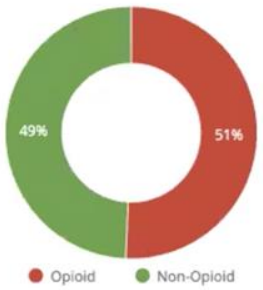
ACTIONS
Launch New Investigation...
LINKS
Pharmacy Dashboard

22.9%
Risk Above Cohort

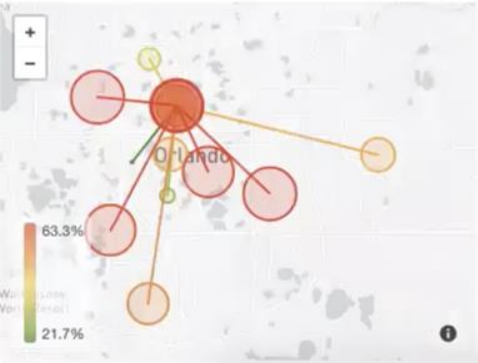
Risk Score Breakdown



% Opioids



Map by Risk Score

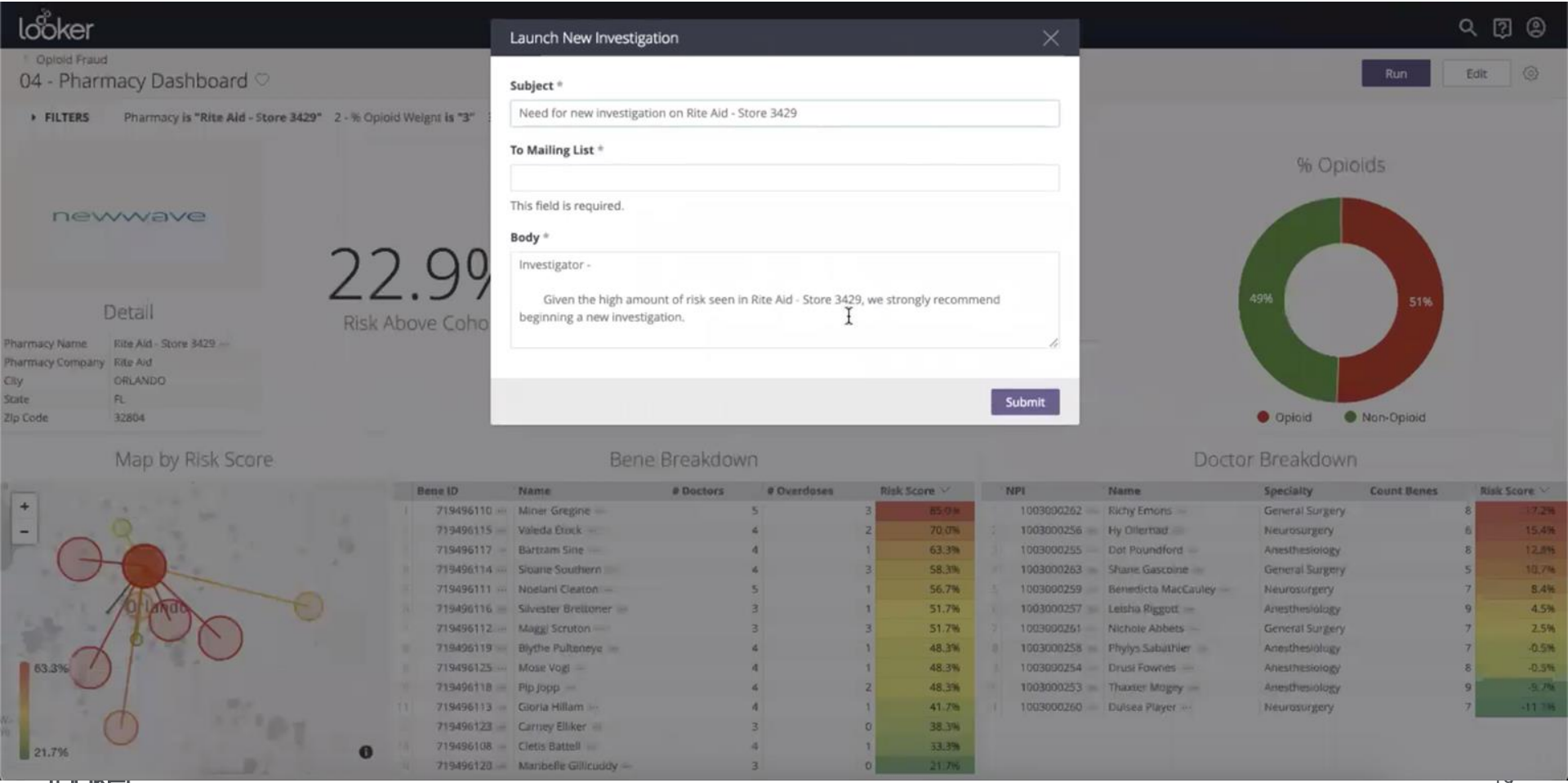


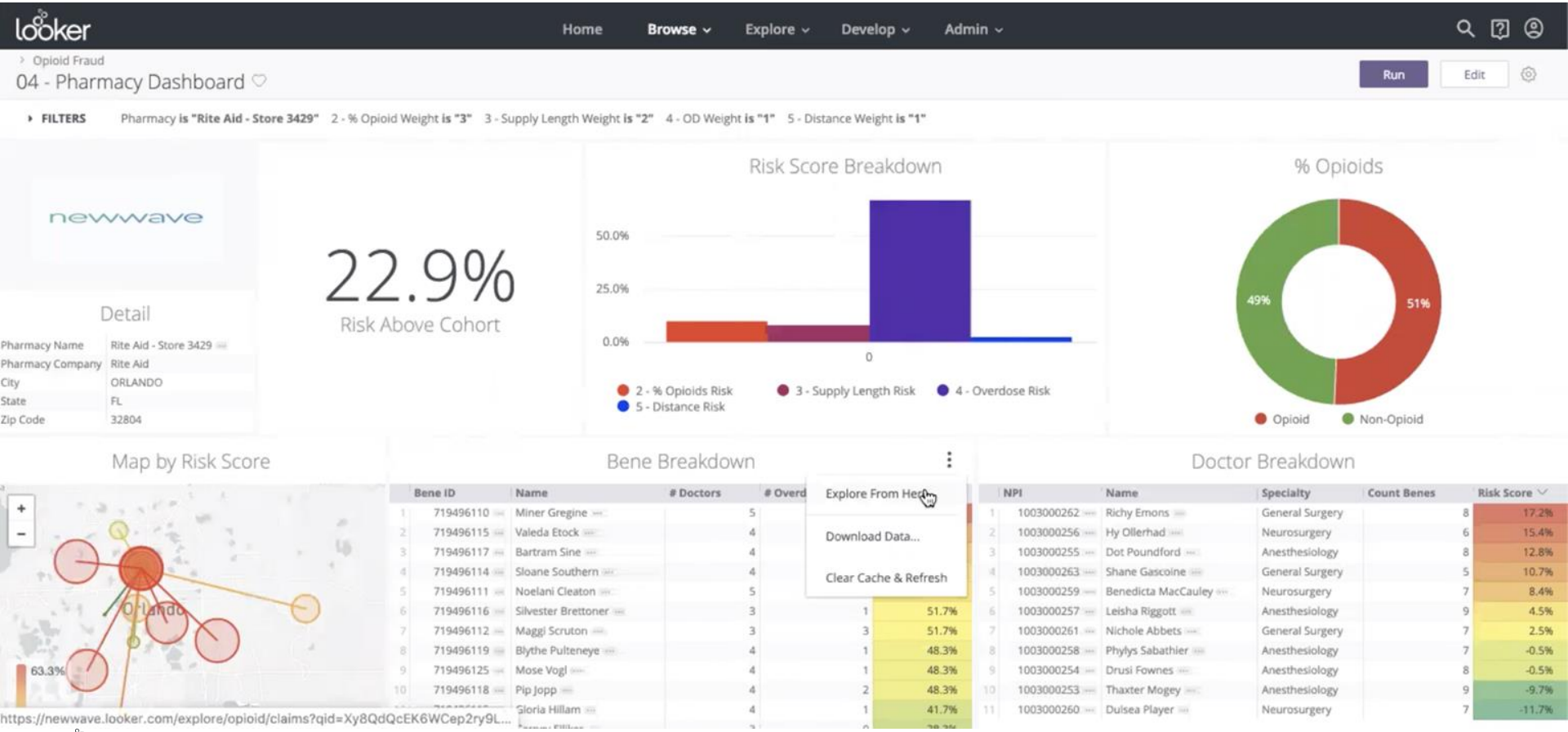
Bene Breakdown

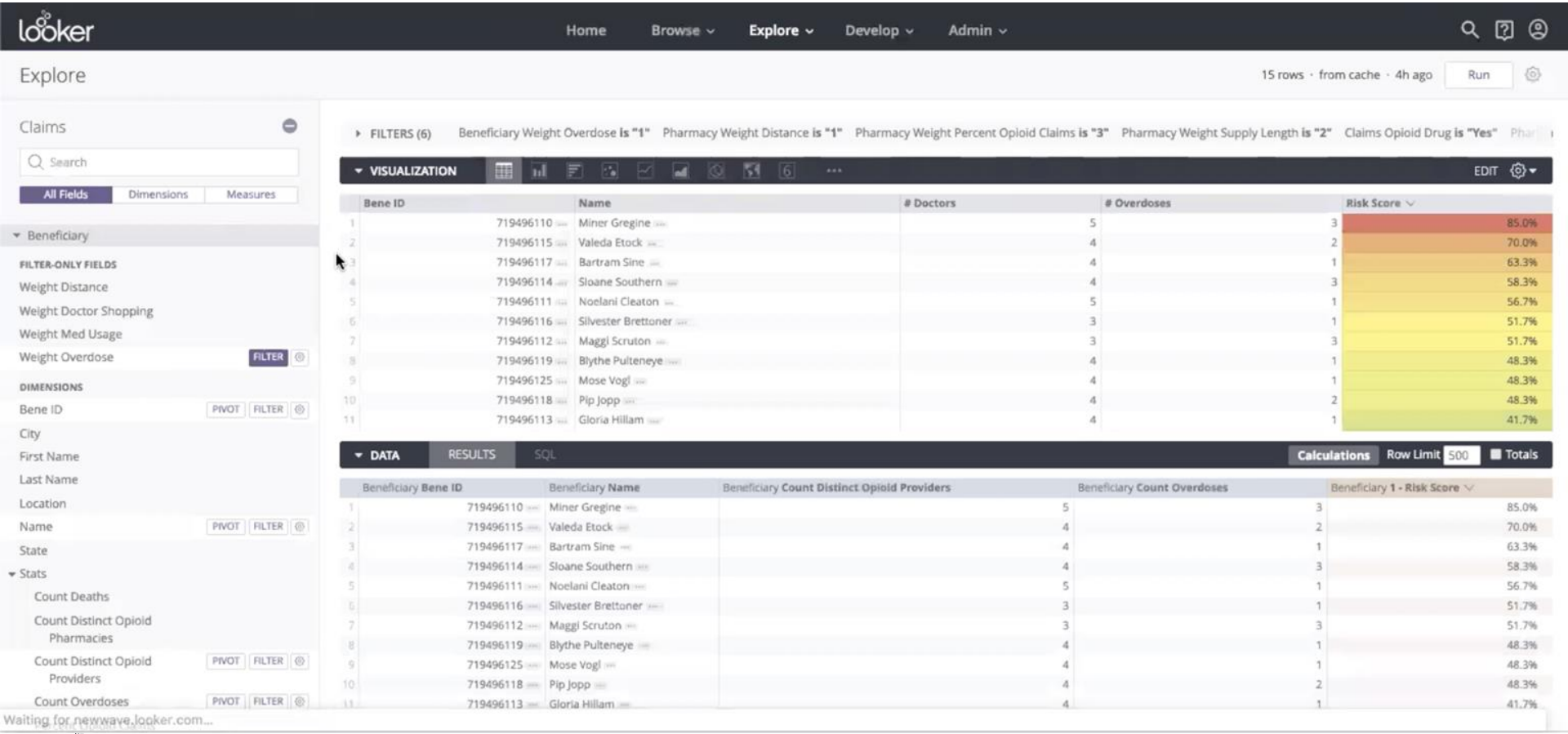
	Bene ID	Name	# Doctors	# Overdoses	Risk Score
1	719496110	Miner Gregine	5	3	85.0%
2	719496115	Valeda Etock	4	2	70.0%
3	719496117	Bartram Sine	4	1	63.3%
4	719496114	Sloane Southern	4	3	58.3%
5	719496111	Noelani Cleaton	5	1	56.7%
6	719496116	Silvester Brettoner	3	1	51.7%
7	719496112	Maggi Scruton	3	3	51.7%
8	719496119	Blythe Pulteneye	4	1	48.3%
9	719496125	Mose Vogl	4	1	48.3%
10	719496118	Pip Jopp	4	2	48.3%
11	719496113	Gloria Hillarn	4	1	41.7%
12	719496123	Carney Elliker	3	0	38.3%
13	719496108	Cletis Battell	4	1	33.3%
14	719496120	Maribelle Gillicuddy	3	0	21.7%

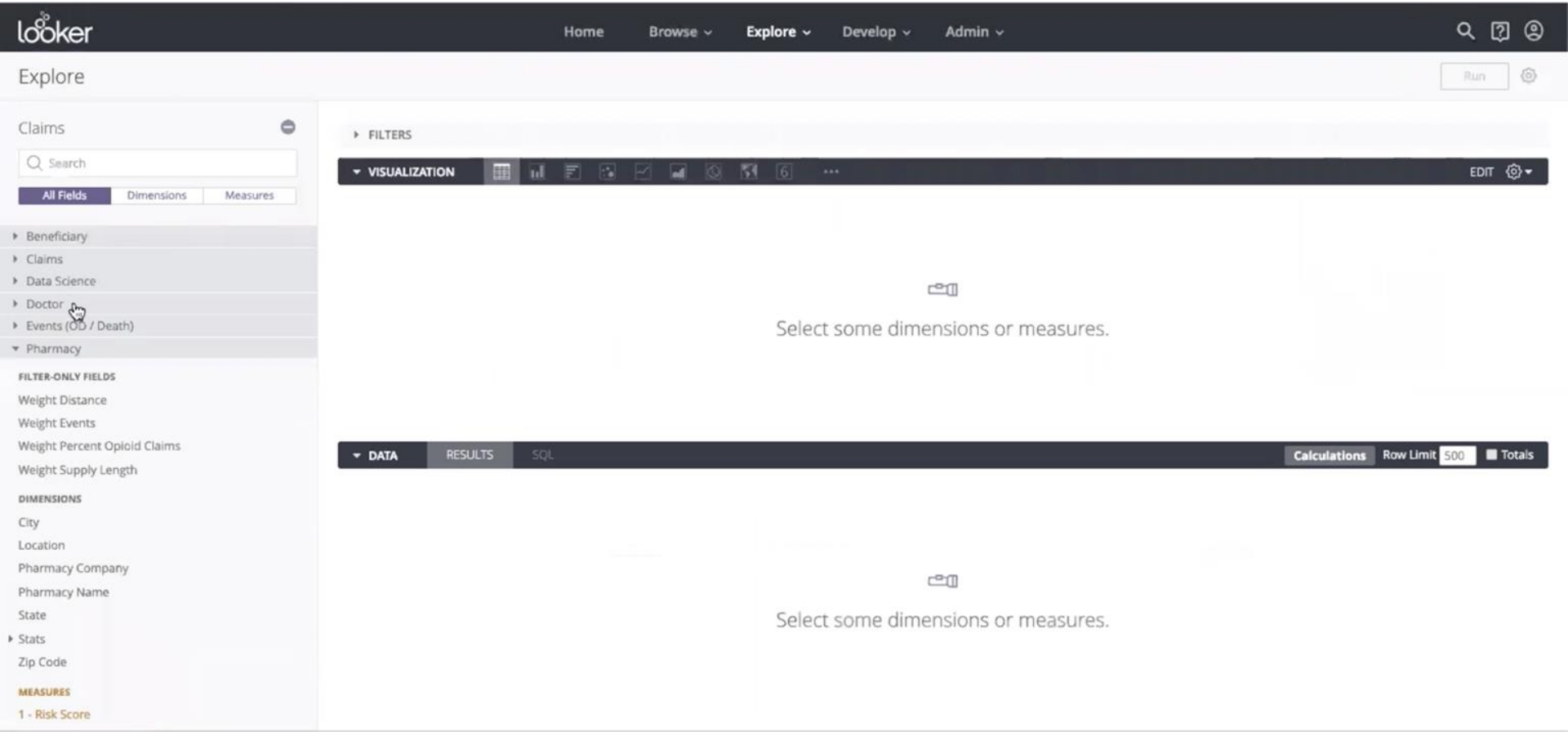
Doctor Breakdown

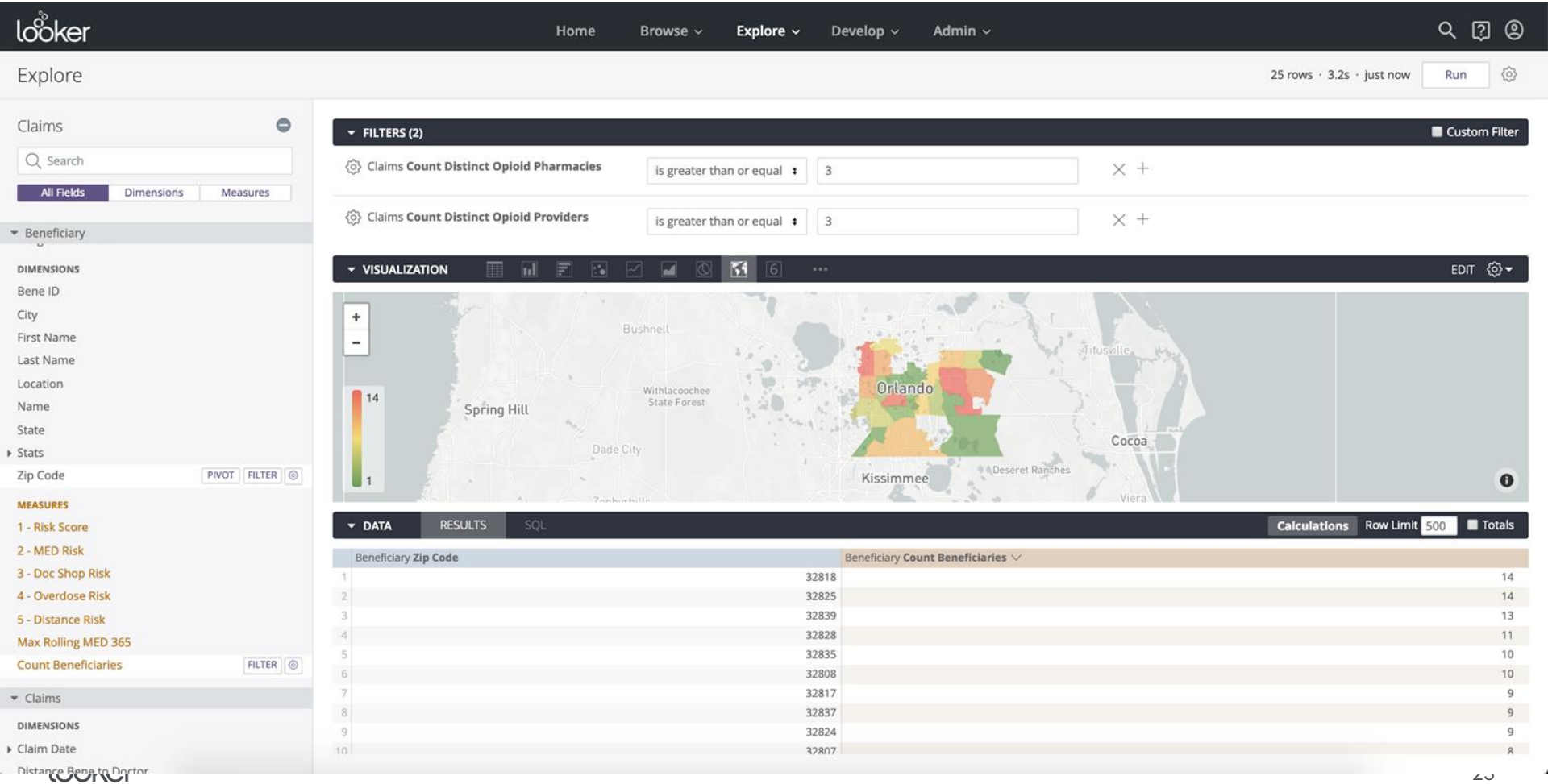
	NPI	Name	Specialty	Count Benes	Risk Score
1	1003000262	Richy Emons	General Surgery	8	17.2%
2	1003000256	Hy Ollerhad	Neurosurgery	6	15.4%
3	1003000255	Dot Poundford	Anesthesiology	8	12.8%
4	1003000263	Shane Gascoine	General Surgery	5	10.7%
5	1003000259	Benedicta MacCauley	Neurosurgery	7	8.4%
6	1003000257	Leisha Riggott	Anesthesiology	9	4.5%
7	1003000261	Nichole Abbets	General Surgery	7	2.5%
8	1003000258	Phylys Sabathier	Anesthesiology	7	-0.5%
9	1003000254	Drusi Fownes	Anesthesiology	8	-0.5%
10	1003000253	Thaxter Mogey	Anesthesiology	9	-9.7%
11	1003000260	Dulsea Player	Neurosurgery	7	-11.7%

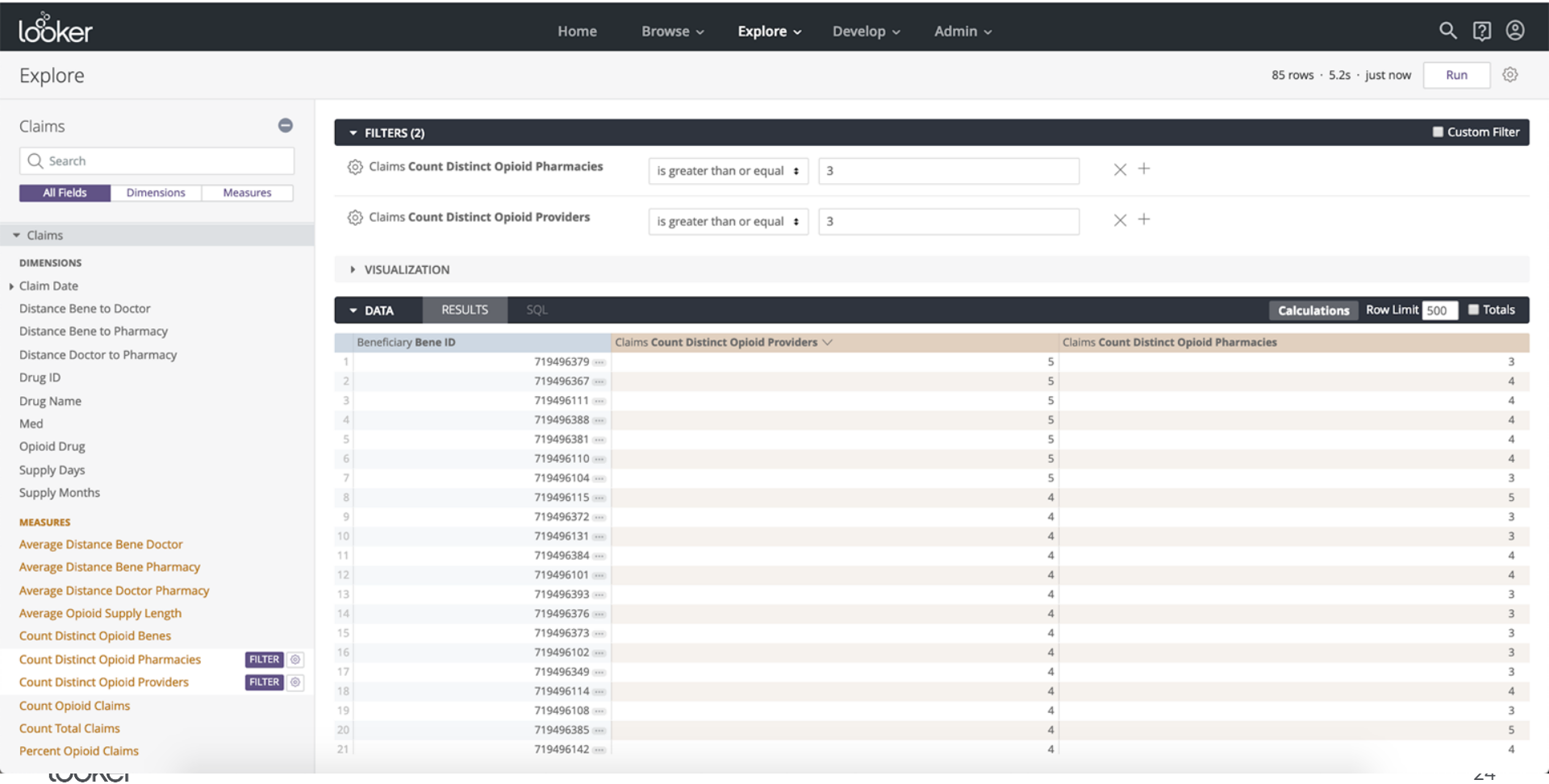

looker
Launch New Investigation
Subject *
Need for new investigation on Rite Aid - Store 3429
To Mailing List *
This field is required.
Body *
Investigator -
Given the high amount of risk seen in Rite Aid - Store 3429, we strongly recommend beginning a new investigation.
Submit
Opioid Fraud
04 - Pharmacy Dashboard
Run
Edit
FILTERS
Pharmacy is "Rite Aid - Store 3429"
2 - % Opioid Weight is "3"
newwave
22.9%
Risk Above Coho
Detail
Pharmacy Name Rite Aid - Store 3429
Pharmacy Company Rite Aid
City ORLANDO
State FL
Zip Code 32804
% Opioids
49%
51%
Opioid
Non-Opioid
Map by Risk Score
Orlando
63.3%
21.7%
Bene Breakdown
Bene ID
Name
Doctors
Overdoses
Risk Score
719496110 Miner Gregine 5 3 85.0%
719496115 Valeda Elrick 4 2 70.0%
719496117 Bartram Sine 4 1 63.3%
719496114 Sloane Southern 4 3 58.3%
719496111 Noelani Cleaton 5 1 56.7%
719496116 Silvester Bretttoner 3 1 51.7%
719496112 Maggi Scruton 3 3 51.7%
719496119 Blythe Pulteneye 4 1 48.3%
719496125 Mose Vogl 4 1 48.3%
719496118 Pip Jopp 4 2 48.3%
719496113 Gloria Hillam 4 1 41.7%
719496123 Carney Elliker 3 0 38.3%
719496108 Cletis Battell 4 1 33.3%
719496120 Maribelle Gillicuddy 3 0 21.7%
Doctor Breakdown
NPI
Name
Specialty
Count Benes
Risk Score
1003000262 Richy Emons General Surgery 8 17.2%
1003000256 Hy Ollerhad Neurosurgery 6 15.4%
1003000255 Dot Poundford Anesthesiology 8 12.8%
1003000263 Shane Gascoine General Surgery 5 10.7%
1003000259 Benedicta MacCauley Neurosurgery 7 8.4%
1003000257 Leisha Riggott Anesthesiology 9 4.5%
1003000261 Nichole Abbets General Surgery 7 2.5%
1003000258 Phylys Sabathier Anesthesiology 7 -0.5%
1003000254 Drusi Fownes Anesthesiology 8 -0.5%
1003000253 Thaxter Mogey Anesthesiology 9 -5.7%
1003000260 Dulsea Player Neurosurgery 7 -11.1%

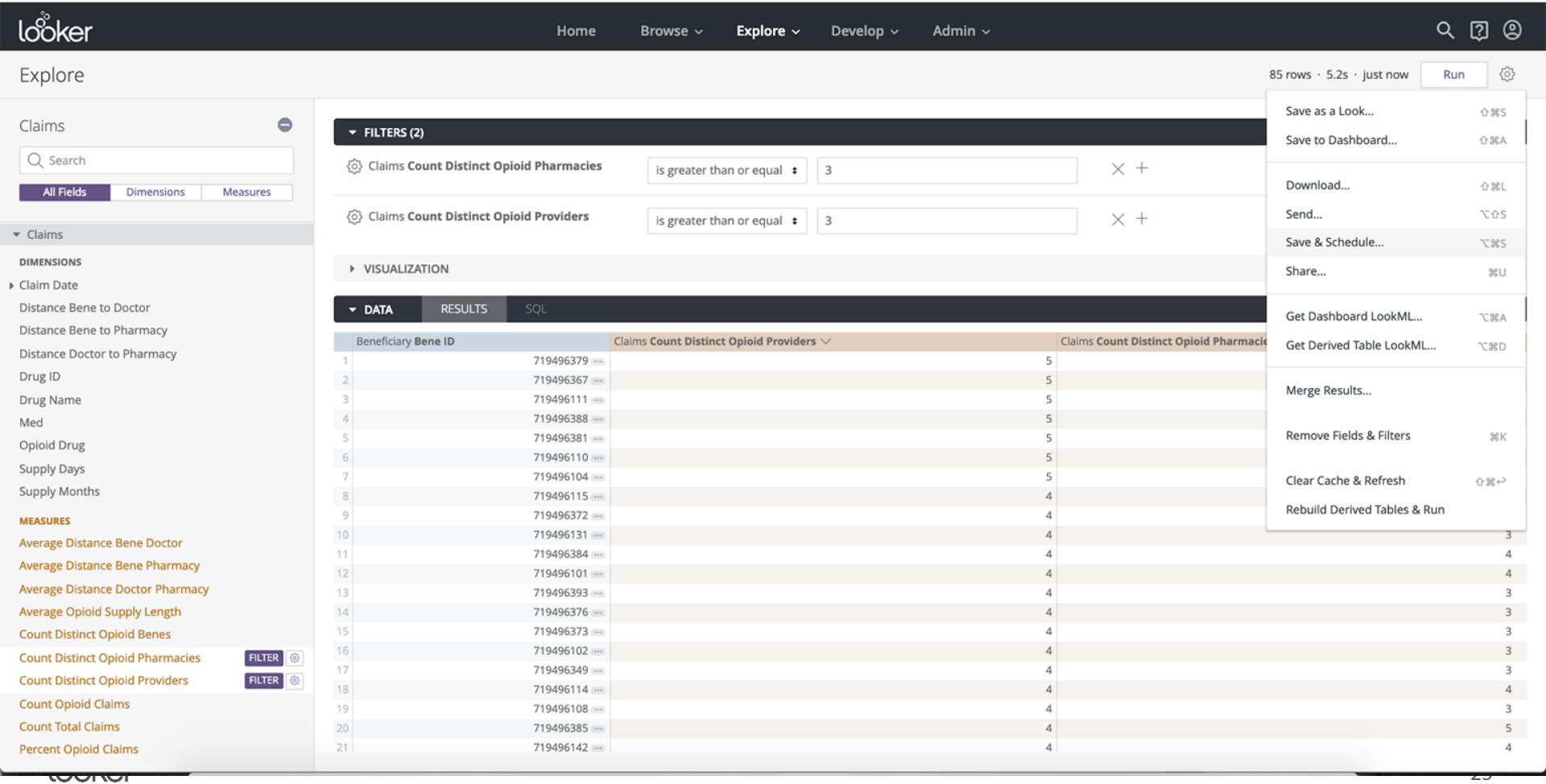

looker
Home
Browse
Explore
Develop
Admin
Opioid Fraud
04 - Pharmacy Dashboard
Run
Edit
FILTERS
Pharmacy is "Rite Aid - Store 3429"
2 - % Opioid Weight is "3"
3 - Supply Length Weight is "2"
4 - OD Weight is "1"
5 - Distance Weight is "1"
newwave
Detail
Pharmacy Name Rite Aid - Store 3429
Pharmacy Company Rite Aid
City ORLANDO
State FL
Zip Code 32804
22.9%
Risk Above Cohort
Risk Score Breakdown
50.0%
25.0%
0.0%
0
2 - % Opioids Risk
3 - Supply Length Risk
4 - Overdose Risk
5 - Distance Risk
% Opioids
49%
51%
Opioid
Non-Opioid
Map by Risk Score
Orlando
63.3%
Bene Breakdown
Explore From Here
Download Data...
Clear Cache & Refresh
Bene ID Name # Doctors # Overd
719496110 Miner Gregine 5
719496115 Valeda Etock 4
719496117 Bartram Sine 4
719496114 Sloane Southern 4
719496111 Noelani Cleaton 5
719496116 Silvester Brettoner 3 1 51.7%
719496112 Maggi Scruton 3 3 51.7%
719496119 Blythe Pulteneye 4 1 48.3%
719496125 Mose Vogl 4 1 48.3%
719496118 Pip Jopp 4 2 48.3%
Gloria Hillam 4 1 41.7%
Doctor Breakdown
NPI Name Specialty Count Benes Risk Score
1003000262 Richy Emons General Surgery 8 17.2%
1003000256 Hy Ollerhad Neurosurgery 6 15.4%
1003000255 Dot Poundford Anesthesiology 8 12.8%
1003000263 Shane Gascoine General Surgery 5 10.7%
1003000259 Benedicta MacCauley Neurosurgery 7 8.4%
1003000257 Leisha Riggott Anesthesiology 9 4.5%
1003000261 Nichole Abbets General Surgery 7 2.5%
1003000258 Phylys Sabathier Anesthesiology 7 -0.5%
1003000254 Drusi Fownes Anesthesiology 8 -0.5%
1003000253 Thaxter Mogey Anesthesiology 9 -9.7%
1003000260 Dulsea Player Neurosurgery 7 -11.7%
https://newwave.looker.com/explore/opioid/claims?qid=Xy8QdQcEK6WCep2ry9L...

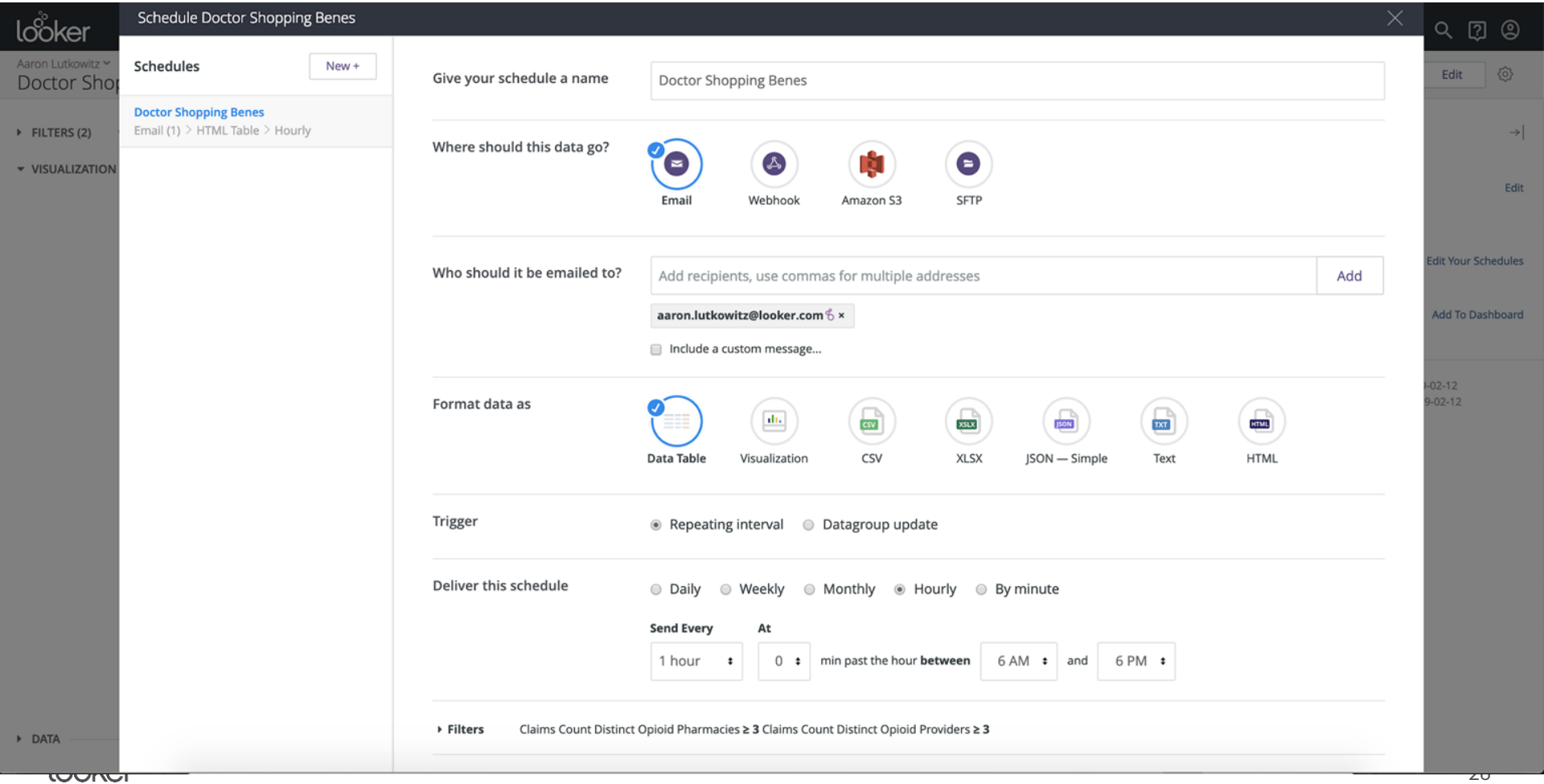

looker
Home
Browse
Explore
Develop
Admin
Explore
15 rows · from cache · 4h ago
Run
Claims
Search
All Fields
Dimensions
Measures
Beneficiary
FILTER-ONLY FIELDS
Weight Distance
Weight Doctor Shopping
Weight Med Usage
Weight Overdose
FILTER
DIMENSIONS
Bene ID
PIVOT
FILTER
City
First Name
Last Name
Location
Name
State
Stats
Count Deaths
Count Distinct Opioid Pharmacies
Count Distinct Opioid Providers
Count Overdoses
FILTERS (6)
Beneficiary Weight Overdose is "1"
Pharmacy Weight Distance is "1"
Pharmacy Weight Percent Opioid Claims is "3"
Pharmacy Weight Supply Length is "2"
Claims Opioid Drug is "Yes"
VISUALIZATION
EDIT
Bene ID
Name
Doctors
Overdoses
Risk Score
719496110 Miner Gregine 5 3 85.0%
719496115 Valeda Etock 4 2 70.0%
719496117 Bartram Sine 4 1 63.3%
719496114 Sloane Southern 4 3 58.3%
719496111 Noelani Cleaton 5 1 56.7%
719496116 Silvester Brettoner 3 1 51.7%
719496112 Maggi Scruton 3 3 51.7%
719496119 Blythe Pulteneye 4 1 48.3%
719496125 Mose Vogl 4 1 48.3%
719496118 Pip Jopp 4 2 48.3%
719496113 Gloria Hillam 4 1 41.7%
DATA
RESULTS
SQL
Calculations
Row Limit 500
Totals
Beneficiary Bene ID
Beneficiary Name
Beneficiary Count Distinct Opioid Providers
Beneficiary Count Overdoses
Beneficiary 1 - Risk Score
719496110 Miner Gregine 5 3 85.0%
719496115 Valeda Etock 4 2 70.0%
719496117 Bartram Sine 4 1 63.3%
719496114 Sloane Southern 4 3 58.3%
719496111 Noelani Cleaton 5 1 56.7%
719496116 Silvester Brettoner 3 1 51.7%
719496112 Maggi Scruton 3 3 51.7%
719496119 Blythe Pulteneye 4 1 48.3%
719496125 Mose Vogl 4 1 48.3%
719496118 Pip Jopp 4 2 48.3%
719496113 Gloria Hillam 4 1 41.7%
Waiting for newwave.looker.com...


looker
Home
Browse
Explore
Develop
Admin
Explore
Run
Claims
Search
All Fields
Dimensions
Measures
Beneficiary
Claims
Data Science
Doctor
Events (OD / Death)
Pharmacy
FILTER-ONLY FIELDS
Weight Distance
Weight Events
Weight Percent Opioid Claims
Weight Supply Length
DIMENSIONS
City
Location
Pharmacy Company
Pharmacy Name
State
Stats
Zip Code
MEASURES
1 - Risk Score
FILTERS
VISUALIZATION
EDIT
Select some dimensions or measures.
DATA
RESULTS
SQL
Calculations
Row Limit
500
Totals
Select some dimensions or measures.


looker
Home
Browse
Explore
Develop
Admin
Explore
25 rows · 3.2s · just now
Run
Claims
Search
All Fields
Dimensions
Measures
Beneficiary
DIMENSIONS
Bene ID
City
First Name
Last Name
Location
Name
State
Stats
Zip Code
PIVOT
FILTER
MEASURES
1 - Risk Score
2 - MED Risk
3 - Doc Shop Risk
4 - Overdose Risk
5 - Distance Risk
Max Rolling MED 365
Count Beneficiaries
FILTER
Claims
DIMENSIONS
Claim Date
FILTERS (2)
Custom Filter
Claims Count Distinct Opioid Pharmacies
is greater than or equal
3
Claims Count Distinct Opioid Providers
is greater than or equal
3
VISUALIZATION
EDIT
Bushnell
Withlacoochee State Forest
Spring Hill
Dade City
Orlando
Titusville
Cocoa
Kissimmee
Deseret Ranches
Viera
14
1
DATA
RESULTS
SQL
Calculations
Row Limit 500
Totals
Beneficiary Zip Code
Beneficiary Count Beneficiaries
1 32818 14
2 32825 14
3 32839 13
4 32828 11
5 32835 10
6 32808 10
7 32817 9
8 32837 9
9 32824 9
10 32807 8


looker
Home
Browse
Explore
Develop
Admin
Explore
85 rows · 5.2s · just now
Run
Claims
Search
All Fields
Dimensions
Measures
Claims
DIMENSIONS
Claim Date
Distance Bene to Doctor
Distance Bene to Pharmacy
Distance Doctor to Pharmacy
Drug ID
Drug Name
Med
Opioid Drug
Supply Days
Supply Months
MEASURES
Average Distance Bene Doctor
Average Distance Bene Pharmacy
Average Distance Doctor Pharmacy
Average Opioid Supply Length
Count Distinct Opioid Benes
Count Distinct Opioid Pharmacies FILTER
Count Distinct Opioid Providers FILTER
Count Opioid Claims
Count Total Claims
Percent Opioid Claims
FILTERS (2)
Custom Filter
Claims Count Distinct Opioid Pharmacies
is greater than or equal
3
Claims Count Distinct Opioid Providers
is greater than or equal
3
VISUALIZATION
DATA
RESULTS
SQL
Calculations
Row Limit 500
Totals
Beneficiary Bene ID
Claims Count Distinct Opioid Providers
Claims Count Distinct Opioid Pharmacies
1 719496379 5 3
2 719496367 5 4
3 719496111 5 4
4 719496388 5 4
5 719496381 5 4
6 719496110 5 4
7 719496104 5 3
8 719496115 4 5
9 719496372 4 3
10 719496131 4 3
11 719496384 4 4
12 719496101 4 4
13 719496393 4 3
14 719496376 4 3
15 719496373 4 3
16 719496102 4 3
17 719496349 4 3
18 719496114 4 4
19 719496108 4 3
20 719496385 4 5
21 719496142 4 4


looker
Home
Browse
Explore
Develop
Admin
Explore
85 rows · 5.2s · just now
Run
Save as a Look... ⇧⌘S
Save to Dashboard... ⇧⌘A
Download... ⇧⌘L
Send... ⌥⇧S
Save & Schedule... ⌥⌘S
Share... ⌘U
Get Dashboard LookML... ⌥⌘A
Get Derived Table LookML... ⌥⌘D
Merge Results...
Remove Fields & Filters ⌘K
Clear Cache & Refresh ⇧⌘↩
Rebuild Derived Tables & Run
Claims
Search
All Fields
Dimensions
Measures
Claims
DIMENSIONS
Claim Date
Distance Bene to Doctor
Distance Bene to Pharmacy
Distance Doctor to Pharmacy
Drug ID
Drug Name
Med
Opioid Drug
Supply Days
Supply Months
MEASURES
Average Distance Bene Doctor
Average Distance Bene Pharmacy
Average Distance Doctor Pharmacy
Average Opioid Supply Length
Count Distinct Opioid Benes
Count Distinct Opioid Pharmacies FILTER
Count Distinct Opioid Providers FILTER
Count Opioid Claims
Count Total Claims
Percent Opioid Claims
FILTERS (2)
Claims Count Distinct Opioid Pharmacies is greater than or equal 3
Claims Count Distinct Opioid Providers is greater than or equal 3
VISUALIZATION
DATA
RESULTS
SQL
Beneficiary Bene ID
Claims Count Distinct Opioid Providers
Claims Count Distinct Opioid Pharmacie
1 719496379 5
2 719496367 5
3 719496111 5
4 719496388 5
5 719496381 5
6 719496110 5
7 719496104 5
8 719496115 4
9 719496372 4
10 719496131 4 3
11 719496384 4 4
12 719496101 4 4
13 719496393 4 3
14 719496376 4 3
15 719496373 4 3
16 719496102 4 3
17 719496349 4 3
18 719496114 4 4
19 719496108 4 3
20 719496385 4 5
21 719496142 4 4


looker
Schedule Doctor Shopping Benes
Schedules
New +
Doctor Shopping Benes
Email (1) > HTML Table > Hourly
Give your schedule a name
Doctor Shopping Benes
Where should this data go?
Email
Webhook
Amazon S3
SFTP
Who should it be emailed to?
Add recipients, use commas for multiple addresses
Add
aaron.lutkowitz@looker.com ×
Include a custom message...
Format data as
Data Table
Visualization
CSV
XLSX
JSON — Simple
Text
HTML
Trigger
Repeating interval
Datagroup update
Deliver this schedule
Daily
Weekly
Monthly
Hourly
By minute
Send Every
At
1 hour
0
min past the hour between
6 AM
and
6 PM
Filters
Claims Count Distinct Opioid Pharmacies ≥ 3 Claims Count Distinct Opioid Providers ≥ 3
Aaron Lutkowitz
Doctor Shop
FILTERS (2)
VISUALIZATION
DATA
Edit
Edit
Edit Your Schedules
Add To Dashboard

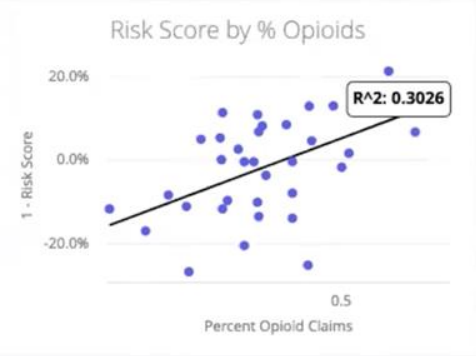
looker Home Browse Explore Develop Admin

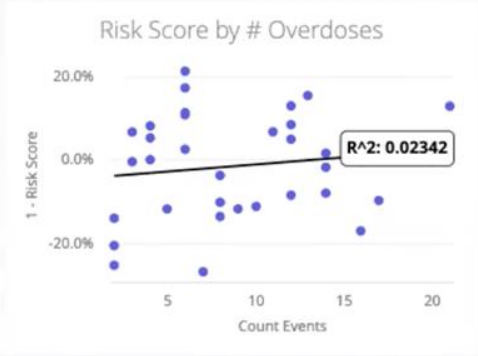
Opioid Fraud

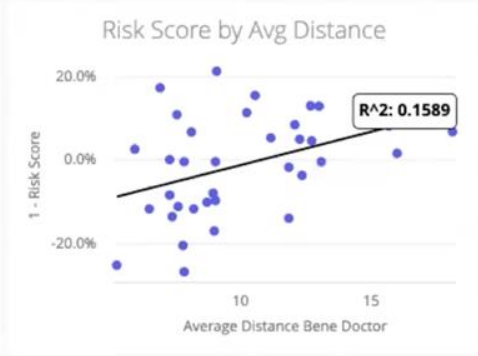
05 - Data Science - Model Evaluation

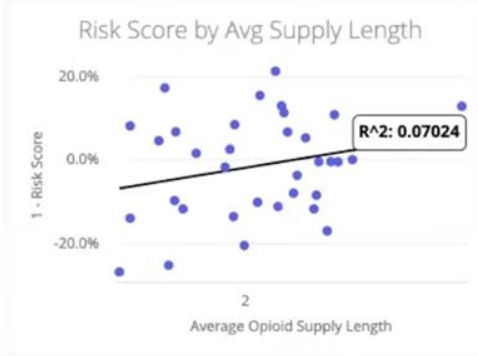
3d ago Edit

1 - Input Variables









2 - Train the Model

6

Iterations

Training Detail

	Iteration	Learning Rate	Loss
1	1	0.2	29.731
2	2	0.2	24.431
3	3	0.4	19.976
4	4	0.4	16.926
5	5	0.4	15.103
6	6	0.4	14.913

3 - Assess Model's Predictive Power

Model Performance

R Squared	0.767
Mean Absolute Error	123.639
Median Absolute Error	0.00972
Mean Squared Error	27.921
Median Squared Error	0.02284

Historical Actual vs. Predicted

Residuals

looker

Predictive Analytics

Dive into predictive model evaluation here

0.767

Model R^2

Doctors Predicted to be High Risk

High Risk Predicted Doctors

	NPI	Name	Predicted Risk
1	1003000264	Selestina Flear	25.9%
2	1003000248	Nancie Biddlecombe	23.0%
3	1003000262	Richy Emons	17.6%
4	1003000242	Reena Thing	17.4%
5	1003000256	Hy Ollerhad	16.1%
6	1003000237	Shem Monni	14.6%
7	1003000241	Andrea Goodredge	13.6%
8	1003000238	Tiffanie Flacke	13.6%
9	1003000261	Nichole Abbets	13.1%
10	1003000263	Shane Gascoine	12.8%
11	1003000266	Tamqrah Cutcliffe	11.6%
12	1003000255	Dot Poundford	11.0%
13	1003000249	Rona Sans	9.7%
14	1003000250	Myrtia Pratty	9.3%
15	1003000245	Peria MacFayden	7.6%
16	1003000258	Phylys Sabathier	7.4%
17	1003000259	Benedicta MacCauley	7.4%
18	1003000267	Alan Castellaccio	4.0%
19	1003000246	Alfonso Kinchington	3.6%
20	1003000252	Candis Tremmil	3.6%
21	1003000275	Alonzo Farrall	0.8%
22	1003000243	Waylon Povall	-0.1%
23	1003000239	Land Farloe	-1.3%
24	1003000257	Leisha Riggott	-2.1%

Thank you!

Resources: https://info.looker.com/

Blog: https://looker.com/blog

Upcoming Events: https://looker.com/events

Request a personal demo: https://looker.com/demo

Email us: hello@looker.com