

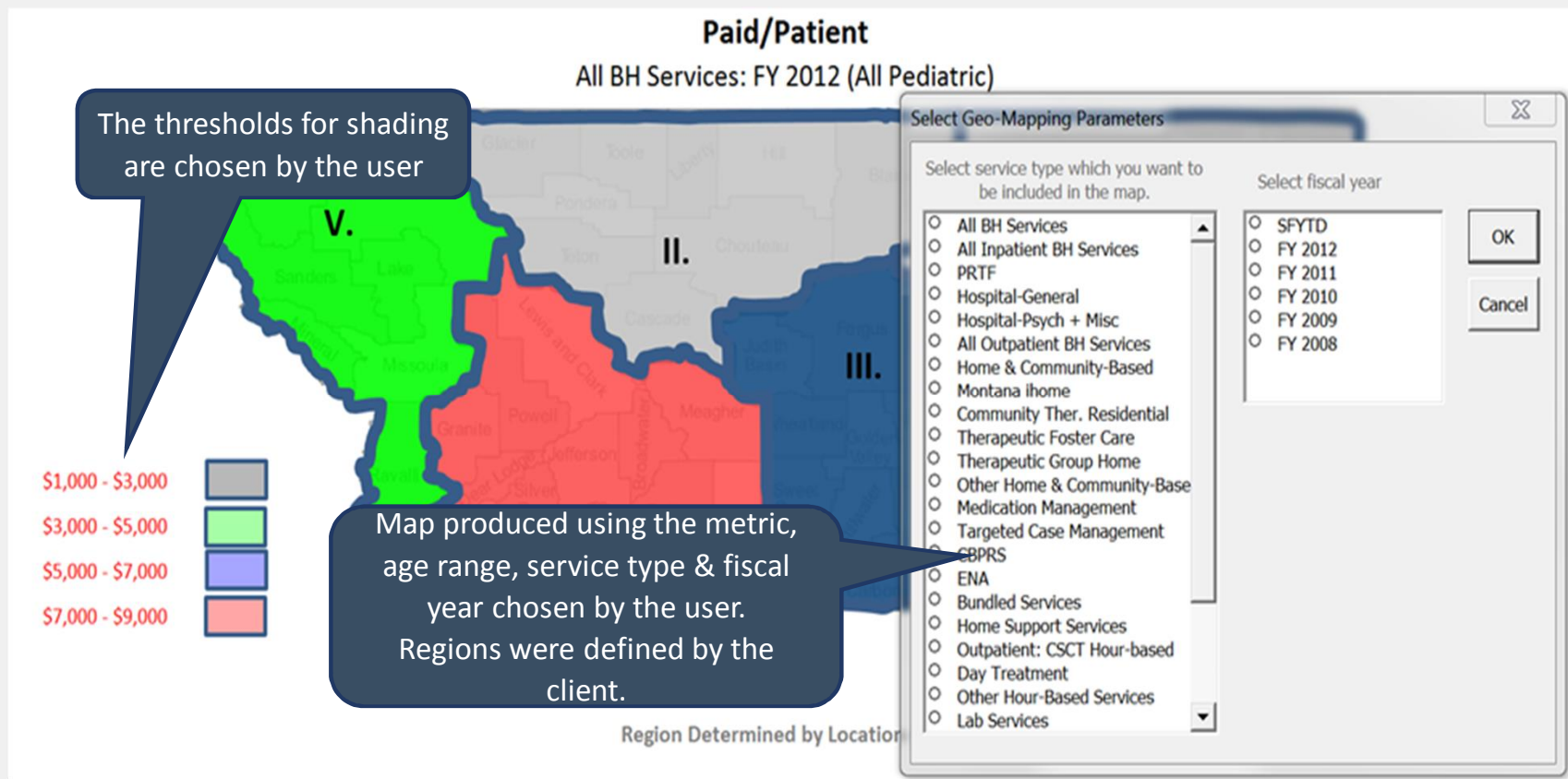
Examples of Data Visualization

(All examples were created within Excel[®])

Healthcare Applications

Although these examples were developed for healthcare applications, they can be equally applicable to business applications

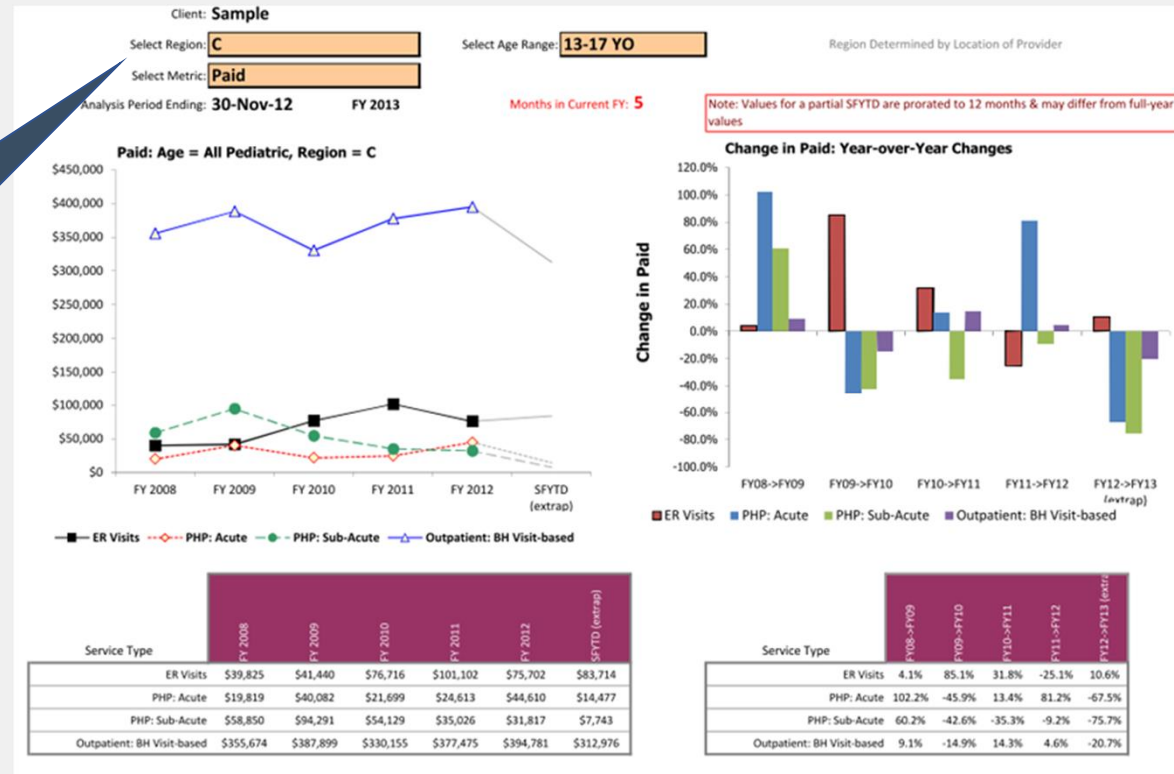
Geo-Mapping



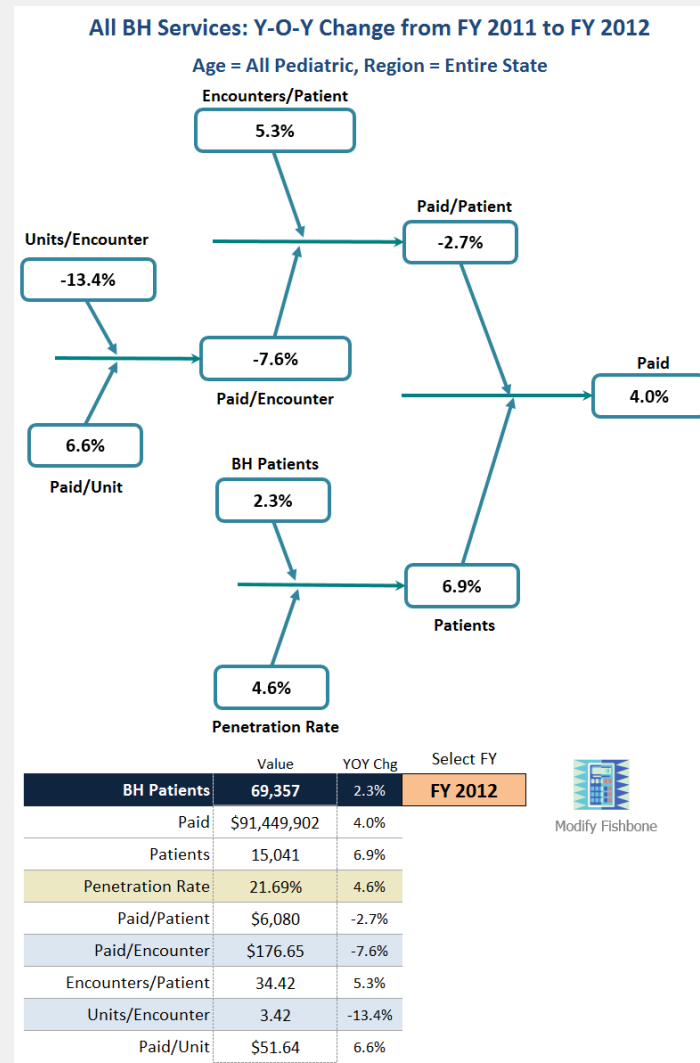
Report Card

User can design their own report by limiting it to:

- “ a specific region or age range
- “ a metric of interest
- “ one or more service types



“Fish Bone” Diagram



The question the user was trying to answer with this interactive report was: “Why did the paid amount for behavioral health (BH) services increase 4% from FY 2011 to FY 2012?”

The answer is contained in the data table but it does not jump out at the user. A fish bone diagram also known as a Ishikawa or cause-and-effect diagram is an excellent way to distill the information needed to answer the user’s question. It is a very useful way to visualize the contribution of multiple factors to a end result.

This data visualization technique allows the user to quickly “see” the components of the final result, in this case the total paid for BH services. We can easily see that the cost increased due to a 7% increase in patients but was offset by a almost 3% decrease in the amount paid/patient.

The increase in utilizing patients in turn was primarily driven by the proportion of those patients utilizing the service (i.e., penetration rate) and then by the number of BH patients. These charts can be as detailed as you desire.

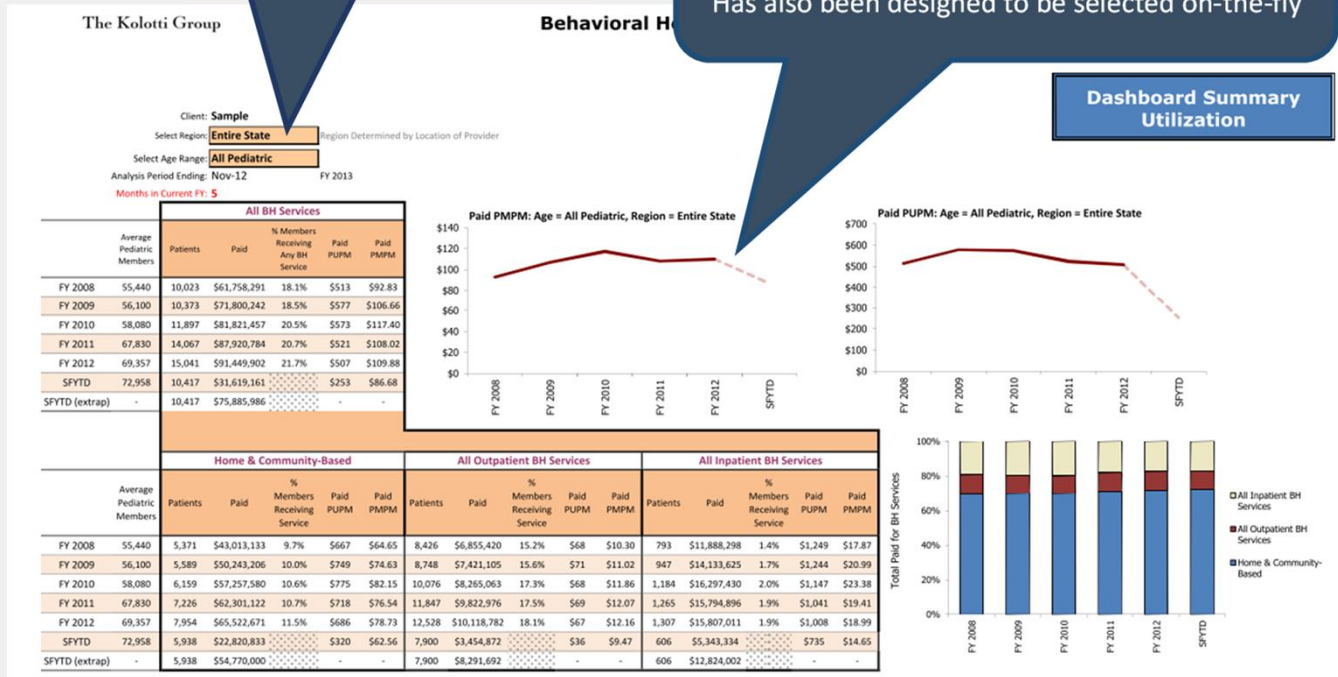
Utilization Dashboard

Chosen using drop-down box

Per member per month (PMPM) cost was chosen by the client as their primary metric

Has also been designed to be selected on-the-fly

Dashboard Summary Utilization



The Dashboard Summary is a hierarchical report designed to show the breakdown of services using the client's preexisting classification system.

Here we see the total BH utilization for the entire state (selected on-the-fly by the user) for all pediatric patients (selected on-the-fly by the user) broken down by the client's three primary classifications—Home & Community-Based, Outpatient Services, and Inpatient Services.

In turn, in the complete report, these primary classifications are broken down into their component classifications. This allow the user to quickly drill-down on any metric of interest.

Utilization Snapshot

Utilization Snapshot

Client: **Sample**

Select Region: **Entire State**

Select Age Range: **All Pediatric**

Analysis Period Ending: **Nov-12**

Months in Current FY: **5**

	FY 2013 SFYTD	FY 2012	Change from FY 2012 to FY 2013	Change from FY 2011 to FY 2012	Change from FY 2010 to FY 2011	Change from FY 2009 to FY 2010
All Medicaid Members	108,895	105,251	+3.5% →	+1.2% →	+18.2% ↗	+3.5% →
Average Pediatric Members	72,958	69,357	+5.2% ↗	+2.3% →	+16.8% ↗	+3.5% →
Members Receiving Any Service (Users)	-	-	-	-	-	-
Members Receiving Any BH Service (BH Users)	10,417	15,041	-30.7% ↓	+6.9% ↗	+18.2% ↗	+14.7% ↗
% Pediatric Members Receiving BH Services	14.3%	21.7%	-34.2% ↓	+4.6% →	+1.2% →	+10.8% ↗
Paid for All BH Services (SFYTD extrap to 12 mo.)	\$75,885,986	\$91,449,902	-17.0% ↘	+4.0% →	+7.5% ↗	+14.0% ↗
SFYTD Paid for All BH Services	\$31,619,161					
BH Paid/BH User	\$7,285	\$6,080	+19.8% ↗	-2.7% ←	-9.1% ↘	-0.6% ←
BH Paid PUPM	\$607	\$507	+19.8% ↗	-2.7% ←	-9.1% ↘	-0.6% ←
BH Paid PMPM (Pediatric Members)	\$86.68	\$109.88	-21.1% ↓	+1.7% →	-8.0% ↘	+10.1% ↗
BH Paid PMPM (All Members)	\$58.07	\$72.41	-19.8% ↘	+2.8% →	-9.1% ↘	+10.1% ↗

Note: Values for a partial SFYTD are prorated to 12 months & may differ from full-year values

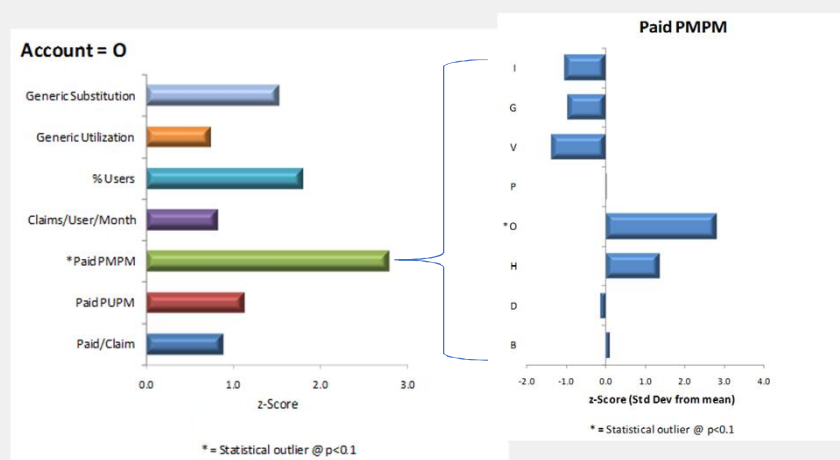
Key

"Large" drop	> 20%	↓
"Moderate" drop	5% - 20%	↘
"Slight" drop	5% or less	←
"Slight" increase	5% or less	→
"Moderate" increase	5% - 20%	↗
"Large" increase	> 20%	↑

The Snapshot offers a quick view into what the current values for the primary metrics are and what the year-over-year (Y-O-Y) changes have been.

As with many of these reports, the user can design their own report by limiting it to a specific region or age range.

Comparative Analysis



A Comparative Report Card is used to compare and contrast different units of interest (e.g., divisions, accounts, or even individuals). Each unit is statistically compared to comparator units.

In the following example, an account (account "O") is compared to other comparable accounts. We can see in the chart to the left that this account has higher utilization & costs than the overall account average (z-score =0) but also has higher generic utilization and substitution.

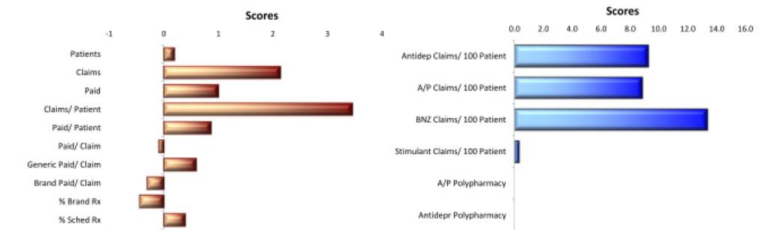
Their paid amount per member per month (PMPM) is statistically different than the overall average at p<0.1.

If we wanted more detail about this particular metric, we would look at the chart to the right which lists one metric of interest (PMPM) for all accounts.

Prescriber Report

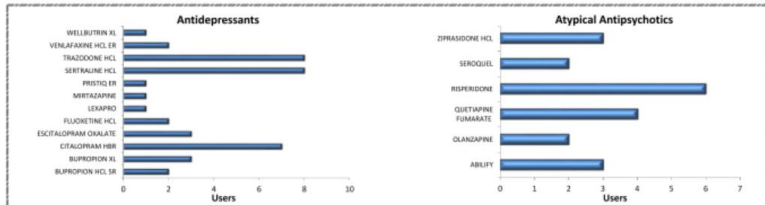
Name:
 ID:
 Population: **ALL**
 Analysis Period: **2Q2012**

Individual Metrics



Patients		Claims		Paid		Claims/Patient		Paid/Patient		Paid/Claim		Generic Paid/Claim		Brand Paid/Claim	
Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean
43	28	524	93	\$29,612	\$6,476	12.2	5.1	\$688.66	\$227.51	\$56.51	\$66.26	\$30.79	\$18.56	\$28.31	\$74.01
% Brand Rx		% Sched Rx		Antidep Claims/100 Patient		A/P Claims/100 Patient		BNZ Claims/100 Patient		Stimulant Claims/100 Patient		A/P Polypharmacy		Antidepr Polypharmacy	
Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean	Your Value	Mean
8.4%	17.4%	22.9%	16.9%	362.8	15.5	911.6	45.1	297.7	10.8	18.6	6.0	0	1.32	0	2.53

Top 10 Drugs by Cost					Long-Acting Injectables by Cost	
Drug	Paid	Paid/Rx	% Total Paid	% Total Rx	Drug	Paid
1 ABILIFY	\$5,338	\$667.23	36.1%	3.1%	1 HALOPERIDOL DECANOATE	\$260
2 ZIPRASIDONE HCL	\$1,482	\$185.24	10.0%	3.1%		
3 OLANZAPINE	\$1,255	\$209.16	8.5%	2.3%		
4 WELLBUTRIN XL	\$1,044	\$261.10	7.1%	1.5%		
5 ESCITALOPRAM OKALATE	\$779	\$129.87	5.3%	2.3%		
6 PRISTIQ ER	\$581	\$290.26	3.9%	0.8%		
7 SEROQUEL	\$410	\$204.86	2.8%	0.8%		
8 DIVALPROX SODIUM ER	\$399	\$28.53	2.7%	5.4%		
9 TRAZODONE HCL	\$397	\$24.84	2.7%	6.2%		
10 BUPROPION XL	\$395	\$43.93	2.7%	3.5%		



Top 5 Patients by Amount Paid for Prescribed Drugs						
Patient Name	Medicaid ID	DOB	Prescribed Drugs	Total Drugs	Prescribed Paid	Total Paid
1			4	29	\$2,032	\$6,915
2			7	22	\$581	\$2,182
3			4	12	\$485	\$654
4			8	11	\$278	\$450
5			7	10	\$110	\$131

*Metrics Used to Calculate Overall Score
 - Stimulant Claims/100 Patient
 - BNZ Claims/100 Patient

(z-Scores from each metric, which measure the difference from the group mean, are combined for the Overall Score)

Provider Profiling

Profiling of behavioral health drug prescribing.

Used z-score to compare individual prescriber to peer group.