



**** Note the original version of this session has live videos which could not be included with this version. For more information, please contact Acmeware after the 2018 MUSE Conference. ****

Custom Dashboards with BCA Visual Insight

2018 MUSE International

Tuesday Training #702

Tuesday May 29, 9:30-12:00

Presenter: Ian Proffer

Today's Agenda



- ✓ Introduction – what are BCA and Visual Insight?
 - ✓ Reporting options in MEDITECH
- ✓ BCA technical architecture and data model
- ✓ Visual Insight walkthrough – build a new dashboard
- ✓ Using external data
- ✓ Summary & discussion

Introductions

- A little about me
- Tell me about your MEDITECH system:
 - MAGIC, C/S, 6.something?
- Tell me about your role:
 - Report developer, analyst, management?
 - Experience with Data Repository or other MT reporting tools?



What is BCA?

- “Business and Clinical Analytics” – MEDITECH’s web-based business intelligence tool
- MEDITECH’s goals for BCA are to:
 - drive operational efficiency
 - maximize financial performance
 - improve patient outcomes
- BCA has 2 ways to deliver reports:
 - Standard content dashboards, pre-built and automatically updated
 - Visual Insight (by Microstrategy) to build your own ad-hoc, custom dashboards



Standard report examples

- Standard
- Visual Insight

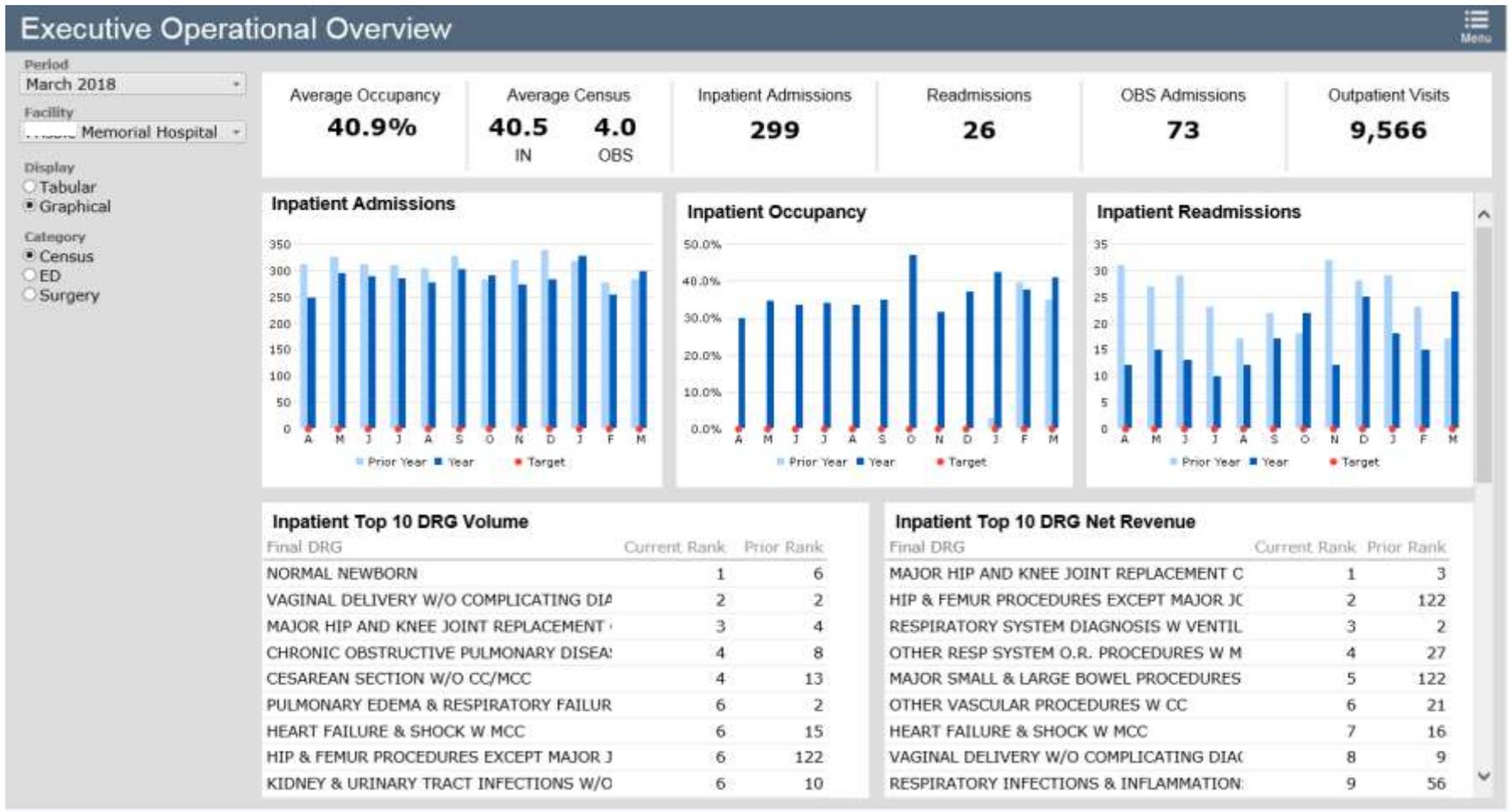
Content Area	Standard Dashboard
Executive	Operational Overview
Service Line	Quality Overview
ED	Revenue Cycle Overview
Surgery	Financial Overview
Census	Enterprise Operational
MU EH	Enterprise Revenue Cycle
Quality	Enterprise Financial
Revenue Cycle	
General Ledger	
Ambulatory	
Supply Chain	



Financial Overview



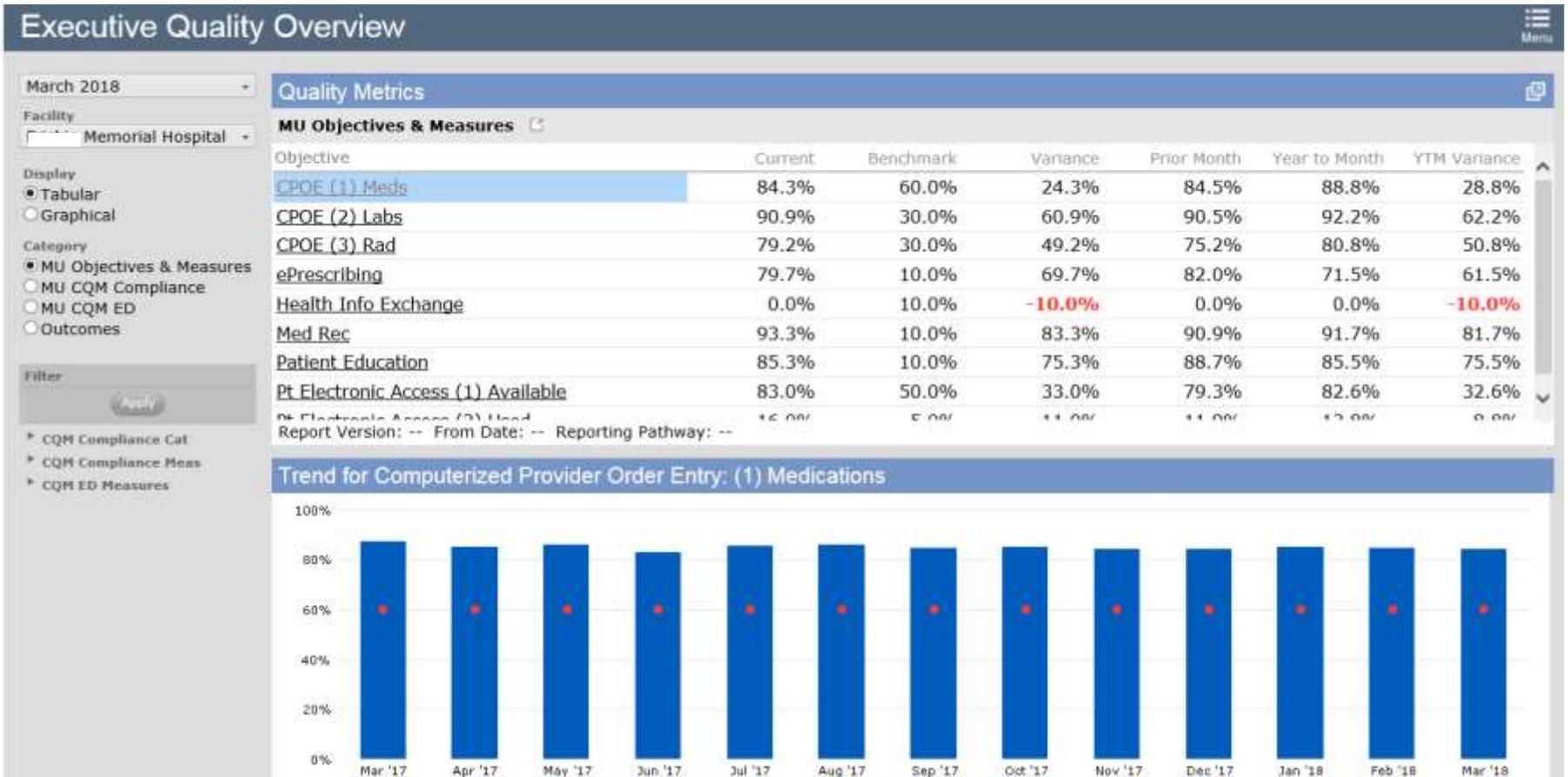
Operational Overview - Census



Operational Metrics - ED



Quality Metrics – Meaningful Use

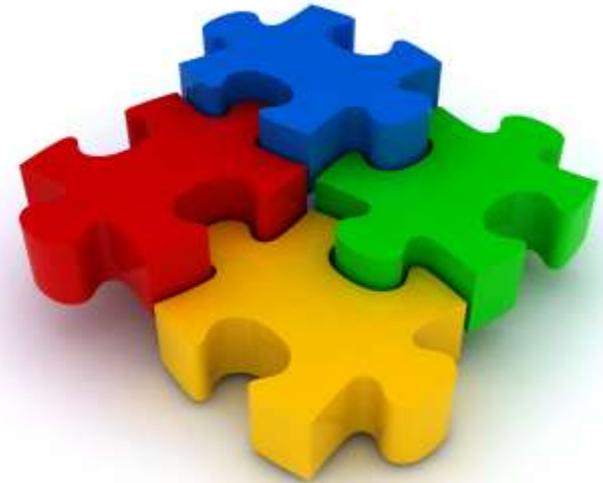


Create your own dashboards

- Visual Insight (VI) is a software tool that allows you to build your own custom dashboards, beyond what the BCA standard dashboards offer.



Where does
BCA fit in the
MEDITECH
reporting
puzzle?



MEDITECH Reporting Options

NPR Report Writer and Report Designer (NPR & RD)

- Proprietary technology provided with all MEDITECH systems
- Used for existing standard reports
- Requires IT staff to learn programming skills
- Which tool you use depends on your platform, version, and which application you're reporting from

Data Repository (DR)

- SQL Server platform lets you use industry-standard reporting tools
- Easily combines data from every MEDITECH application
- Requires SQL expertise, since MEDITECH provides just the platform, but no “pre-baked” reports

Business & Clinical Analytics (BCA)

- Optional application from MEDITECH available at additional cost
- DR and SQL Server-based
- Provides pre-configured summary reports with dynamic analysis tools
- Includes user-customizable reports with Visual Insight application



What should I use? It depends...

- What kind of data do I need?
 - Summary level, retrospective? Or detailed records per patient, per transaction, etc.?
- Where does the data reside in MEDITECH?
 - NPR, M/AT, Data Repository?
- Does it need to be real-time? (Labels, wrist bands, printed instructions, etc.) Or is yesterday's data good enough?
- Will you access and run the report from a MEDITECH menu, web browser, or other desktop application?
- Who's looking at it? C-level executives, department heads and managers, clinical or informatic analysts?



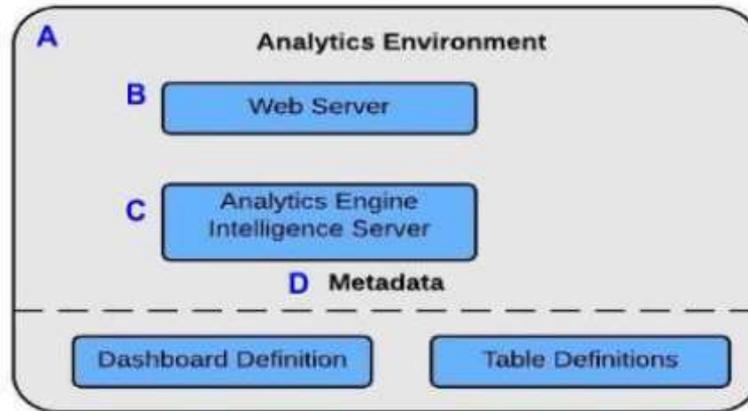
Ideal Scenarios for Visual Insight

- Summary level, retrospective information
 - E.g., BAR totals by month or period, not detailed transactions
- Anything related to SQL Server and Data Repository, including:
 - Using standard data from BCA to build custom dashboards
 - Building your own data models based on Data Repository data
 - Bringing in external data to display alongside DR data
- Meaningful Use/Quality Reporting

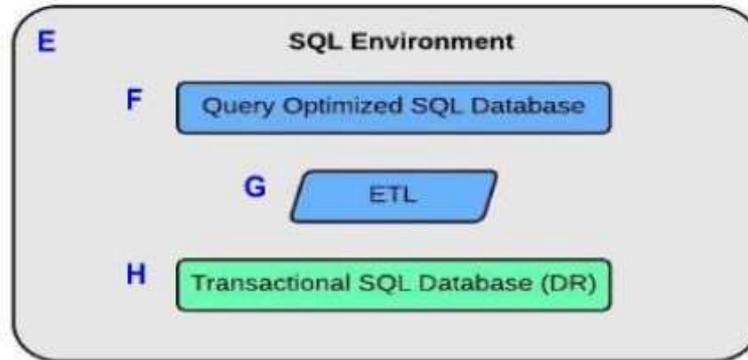


BCA Technical Architecture

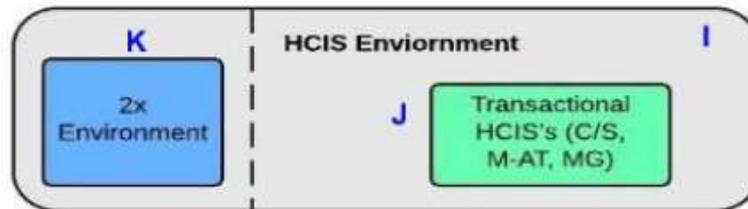
Web/application server



Data Repository



MEDITECH



Managing BCA from MEDITECH

BCA Maintenance Desktop - (MTUNV201/T2.0.1F/T2.0.1F) - Smith,James [EDT]

Query Optimized Database: BCA_QOSDB_T567

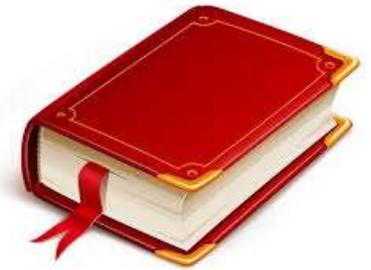
ETL Summary

Schedule	Table	Start Date/Time	End Date/Time	Elapsed Time (Minutes)	Status	Error
DATEFACTMONT...	BAR_AD1_TXN_FACT	07/02/16 12:00:01	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_BD_XFER_TXN_FACT	07/02/16 12:00:11	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_BILL_TXN_FACT	07/02/16 12:00:14	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_CHARGE_TXN_FACT	07/02/16 12:00:18	07/02/16 12:00:...	0	Complete	Yes
SNAPFACTDAILY	BAR_CL_RECEIVABLES_SNAP...	10/25/16 03:00:01	10/25/16 03:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_CL_XFER_TXN_FACT	07/02/16 12:00:25	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_CURRENT_INS_LEDGER...	07/02/16 12:00:28	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_INS_XFER_TXN_FACT	07/02/16 12:00:32	07/02/16 12:00:...	0	Complete	Yes
PERIODFACTMO...	BAR_PE_CL_FACT	07/02/16 02:00:01	07/02/16 02:00:...	0	Complete	Yes
PERIODFACTMO...	BAR_PE_INS_BILL_FACT	07/02/16 02:00:02	07/02/16 02:00:...	0	Complete	Yes
PERIODFACTMO...	BAR_PE_UR_FACT	07/02/16 02:00:10	07/02/16 02:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_RCPT_TXN_FACT	07/02/16 12:00:35	07/02/16 12:00:...	0	Complete	Yes
SNAPFACTDAILY	BAR_RECEIVABLE_SNAP_SHO...	10/25/16 03:00:06	10/25/16 03:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_REF_TXN_FACT	07/02/16 12:00:39	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	BAR_REMIT_DENIAL_FACT	07/02/16 12:00:43	07/02/16 12:00:...	0	Complete	Yes
SNAPFACTDAILY	BAR_UR_RECEIVABLES_SNAP...	10/25/16 03:00:09	10/25/16 03:00:...	0	Complete	Yes
DATEFACTMONT...	CEN_HAC_FACT	07/02/16 12:00:46	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	CEN_INP_ADMIT_EVENT_FACT	07/02/16 12:00:48	07/02/16 12:00:...	0	Complete	Yes
DATEFACTMONT...	CEN_INP_CENSUS_FACT	07/02/16 12:00:53	07/02/16 12:01:...	0	Complete	Yes
DATEFACTMONT...	CEN_INP_DIS_EVENT_FACT	07/02/16 12:01:29	07/02/16 12:01:...	0	Complete	Yes
DATEFACTMONT...	CEN_INP_LOCATION_DAYS_F...	07/02/16 12:01:37	07/02/16 12:03:...	2	Complete	Yes
DATEFACTMONT...	CEN_INP_PATIENT_DAYS_FACT	07/02/16 12:03:46	07/02/16 12:04:...	0	Complete	Yes
JBDAILY	CEN_INP_PATIENT_DAYS_FACT	08/18/16 14:53:34	08/18/16 15:03:...	10	Complete	Yes
SNAPFACTDAILY	CEN_INP_TOTAL_BED_FACT	10/25/16 03:00:11	10/25/16 03:00:...	0	Complete	Yes
DATEFACTMONT...	CEN_MORTALITY_ALL_FACT	07/02/16 12:04:32	07/02/16 12:04:...	0	Complete	Yes
DATEFACTMONT...	CEN_OBS_ADMIT_EVENT_FACT	07/02/16 12:04:45	07/02/16 12:04:...	0	Complete	Yes
DATEFACTMONT...	CEN_OBS_CENSUS_FACT	07/02/16 12:04:54	07/02/16 12:05:...	0	Complete	Yes
DATEFACTMONT...	CEN_OBS_DIS_EVENT_FACT	07/02/16 12:05:04	07/02/16 12:05:...	0	Complete	Yes
DATEFACTMONT...	CEN_OBS_PATIENT_DAYS_FA...	07/02/16 12:05:17	07/02/16 12:05:...	0	Complete	Yes
DATEFACTMONT...	CEN_OUTPT_APPT_FACT	07/02/16 12:05:34	07/02/16 12:05:...	0	Complete	Yes

Filter Cancel

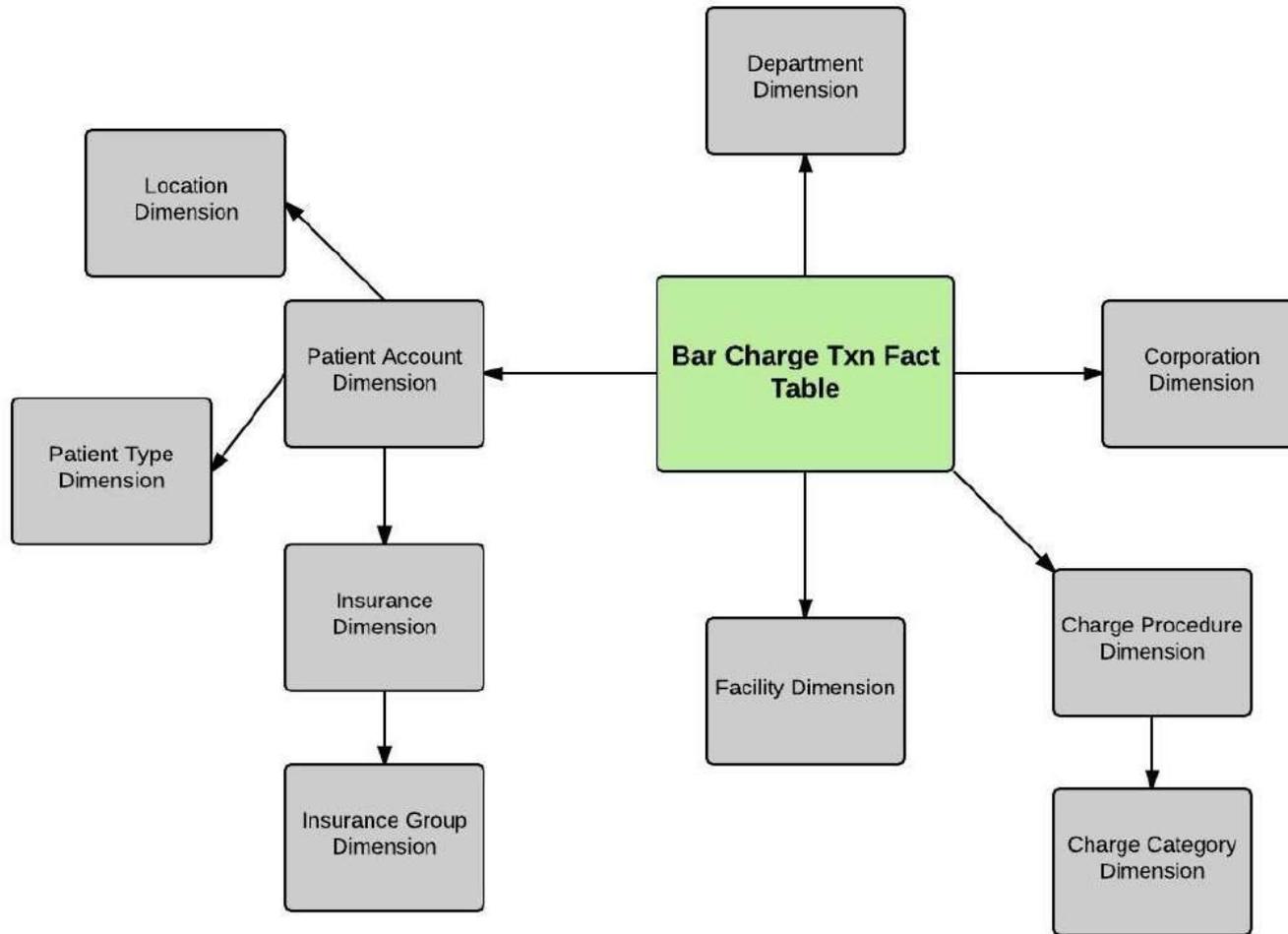
- ETL Summary
- ETL Detail
- Upload External Data
- View ETL Schedule
- Unsourced Columns
- Source Tables
- View Table Dictionary
- Purge Script Logs
- View Perf Log
- ETL Exclusions Viewer

Glossary of VI terms



- Dashboard: a collection of visualizations.
- Visualization: a visual, graphical representation of data.
- Intelligent cube: a pre-aggregated data set stored at a granular level and automatically refreshed on a regular basis.
- Attribute: the descriptive data from the data warehouse that provide context for analyzing *facts*, also referred to as *dimensions*.
- Metric: a measurement used to gauge some quantifiable component of an organization's performance, typically measured across time.

Fact & dimension tables



Build your own dashboard

Executive Operational Overview Menu

Period: **January 2018**

Facility: **Frisbie Memorial Hospital**

Display: Tabular Graphical

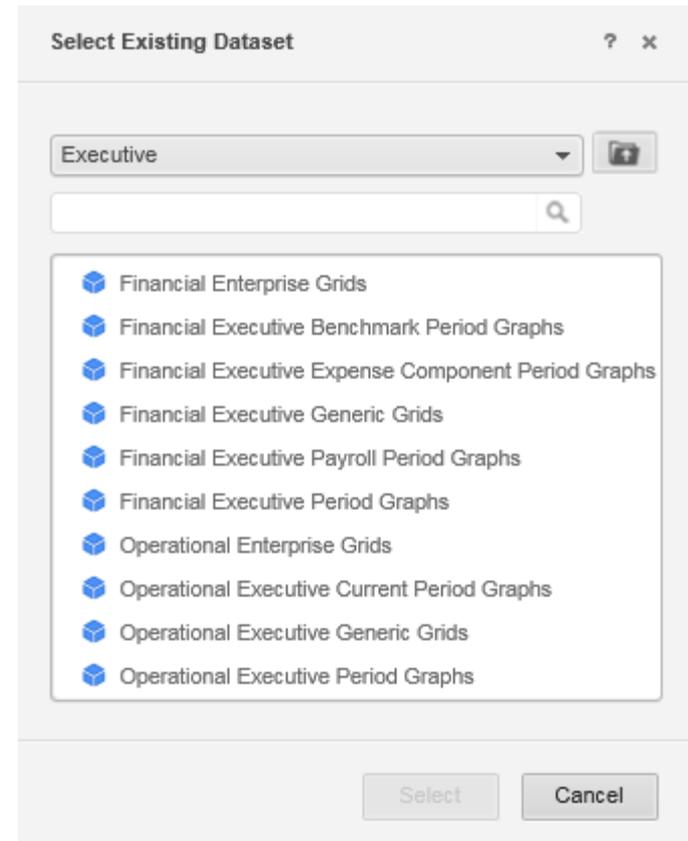
Category: All Census Service Line ED Surgery

Operational Metrics		Prior Period		Target		
Metrics	Current Period	Prior Period	Variance %	YTP	YTP PY	Variance %
Census						
% Inpatient Occupancy	39.1%	37.0%	5.6%	38.3%	0.7%	5026.3%
% Occupancy Observation	3.6%	3.1%	15.1%	4.8%	0.0%	14372.2%
Inpatient Admissions	228	282	-19.1%	1,074	1,258	-14.6%
Inpatient Discharges	213	291	-26.8%	1,066	1,277	-16.5%
Avg Inpatient Census	28.7	36.7	-21.6%	33.6	0.7	4442.9%
Inpatient Patient Days	686	1,116	-38.5%	3,857	115	3253.9%
Avg Inpatient LOS	4.5	4.7	-4.8%	4.6	12.5	-63.1%
Observations	50	65	-23.1%	291	4	7175.0%
Observation Discharges	50	67	-25.4%	289	1,915	-84.9%
Avg Observation Census	2.6	3.1	-14.6%	4.2	0.0	12725.0%
Obs Patient Days	57	79	-27.8%	371	5	7320.0%
Avg Obs LOS (hrs)	23.9	24.5	-2.7%	26.4	0.0	5054439.8%
ED to Obs	24	32	-25.0%	129	0	--
Obs to IN	9	13	-30.8%	64	0	--
IN to Obs	0	0	--	0	0	--
Outpatient Visits	6,842	9,076	-24.6%	35,934	32,847	9.4%
Readmissions	4	22	-81.8%	60	107	-43.9%
Readmissions Rate	2.0%	7.8%	-74.6%	5.8%	8.6%	-32.7%
Mortality Count	11	9	22.2%	31	31	0.0%
Mortality Rate	5.2%	3.1%	67.0%	2.9%	2.4%	19.8%

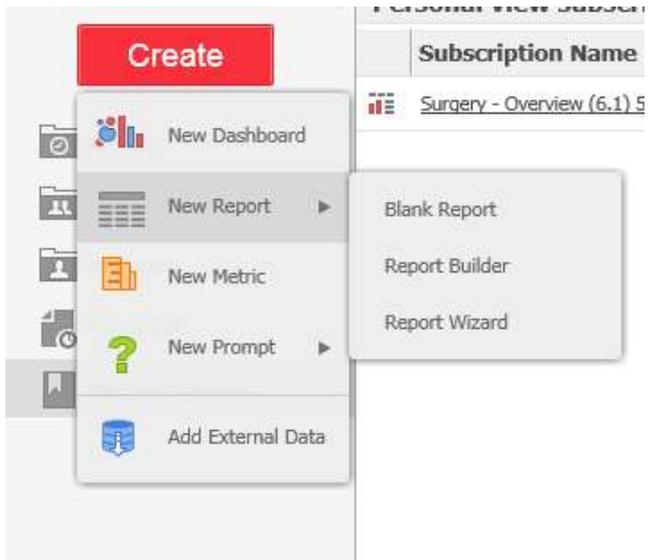


Use an existing dataset

- Use this option when you want to modify visualizations or add new ones to an existing report.
- Advantages: the attributes and metrics from the dataset are all pre-defined and related; good report performance.
- Disadvantages: existing datasets may not have the metrics or attributes you need.

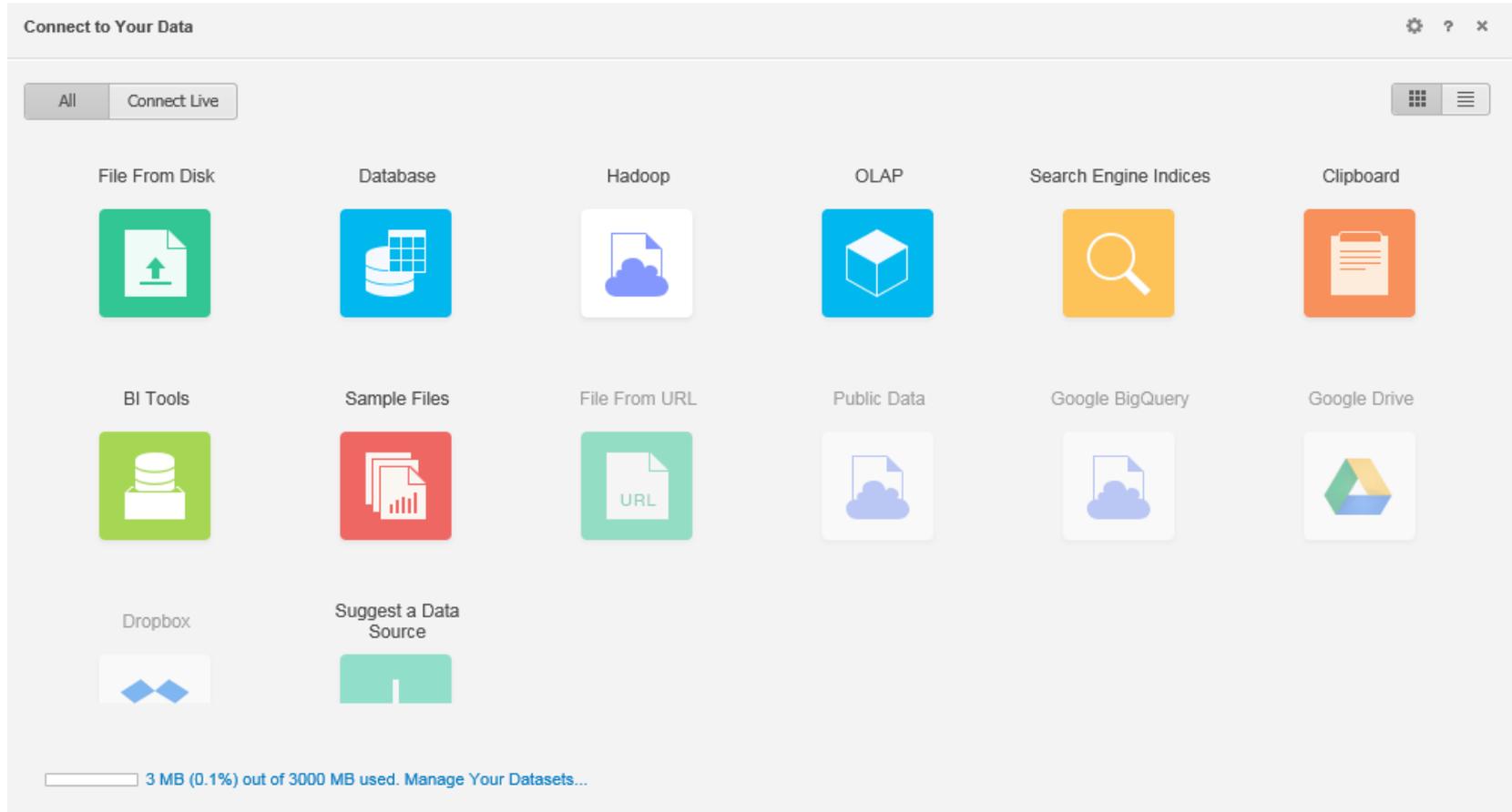


Create a new report



- Use this option when you need specific attributes and metrics that may not be part of an existing dataset.
- Advantages: the dataset will be tailor-made for your report and only have the data you need; you can also define data elements that may not be part of other cubes.
- Disadvantages: more work up front to correctly define the dataset; initial report performance may be slow, since it's not pre-cached.

Add external data



Design space overview by region

FILE VIEW FORMAT [Navigation icons]

DASHBOARD DATASETS

All [Search]

- Operational Executive Current Period...
 - In memory
 - Facility
 - Final DRG
 - Inpatient Service
 - Period Transform Type
 - Security Corporation
 - Security Department
 - Security Facility
 - Selector Period
 - Admissions (Current Period)
 - Admit to Obs Discharged (Current Pe...)
 - Avg ED LOS (Current Period)
 - Avg Inpatient LOS (Current Period)
 - Avg LOS Obs Discharged (Current P...)
 - ED % Admitted (Current Period)
 - ED Departures (Current Period)
 - ED Visits (Current Period)
 - ER to Obs Discharged (Current Period)
 - Hospital Wide Incidents (Current Peri...)
 - I/P Charges per Patient Day (Current ...)
 - Inpatient Census (Current Period)
 - Inpatient Discharges (Current Period)
 - Inpatient Discharges (Prior Period)
 - Inpatient Patient Days (Current Period)
 - Mortality Rate with Elapsed Days <= ...
 - Obs Census (Current Period)
 - Obs Patient Days (Current Period)
 - Observation Discharges (Current Peri...)
 - Observations (Current Period)
 - Observations (Prior Period)

EDITOR Visualization 2

Visualization 2

Rows

- Inpatient Service

Columns

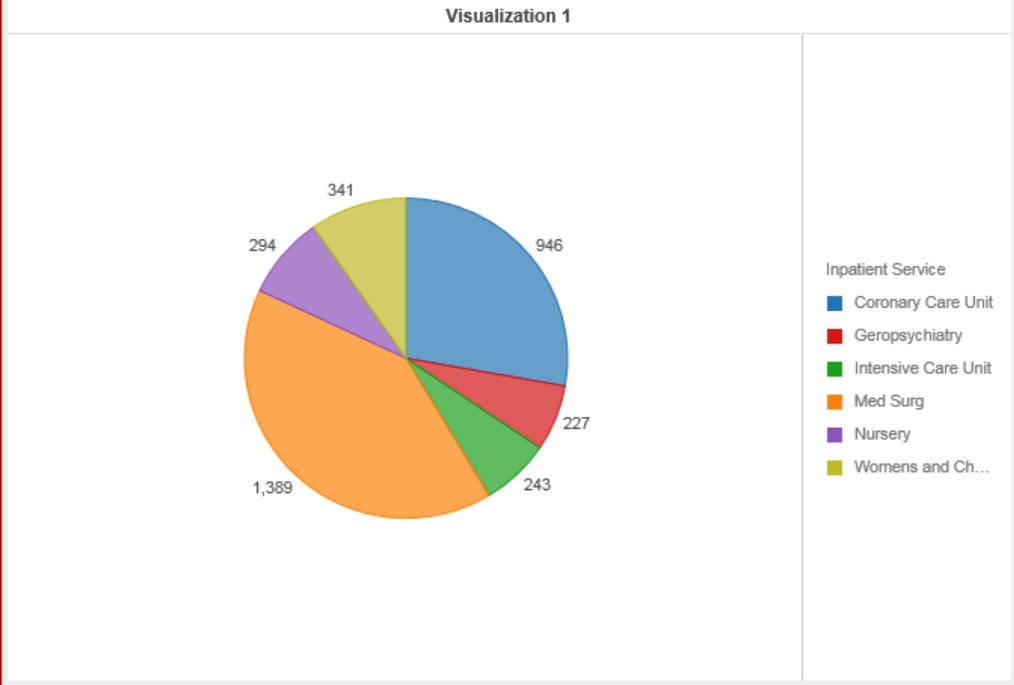
- Metric Names

Metrics

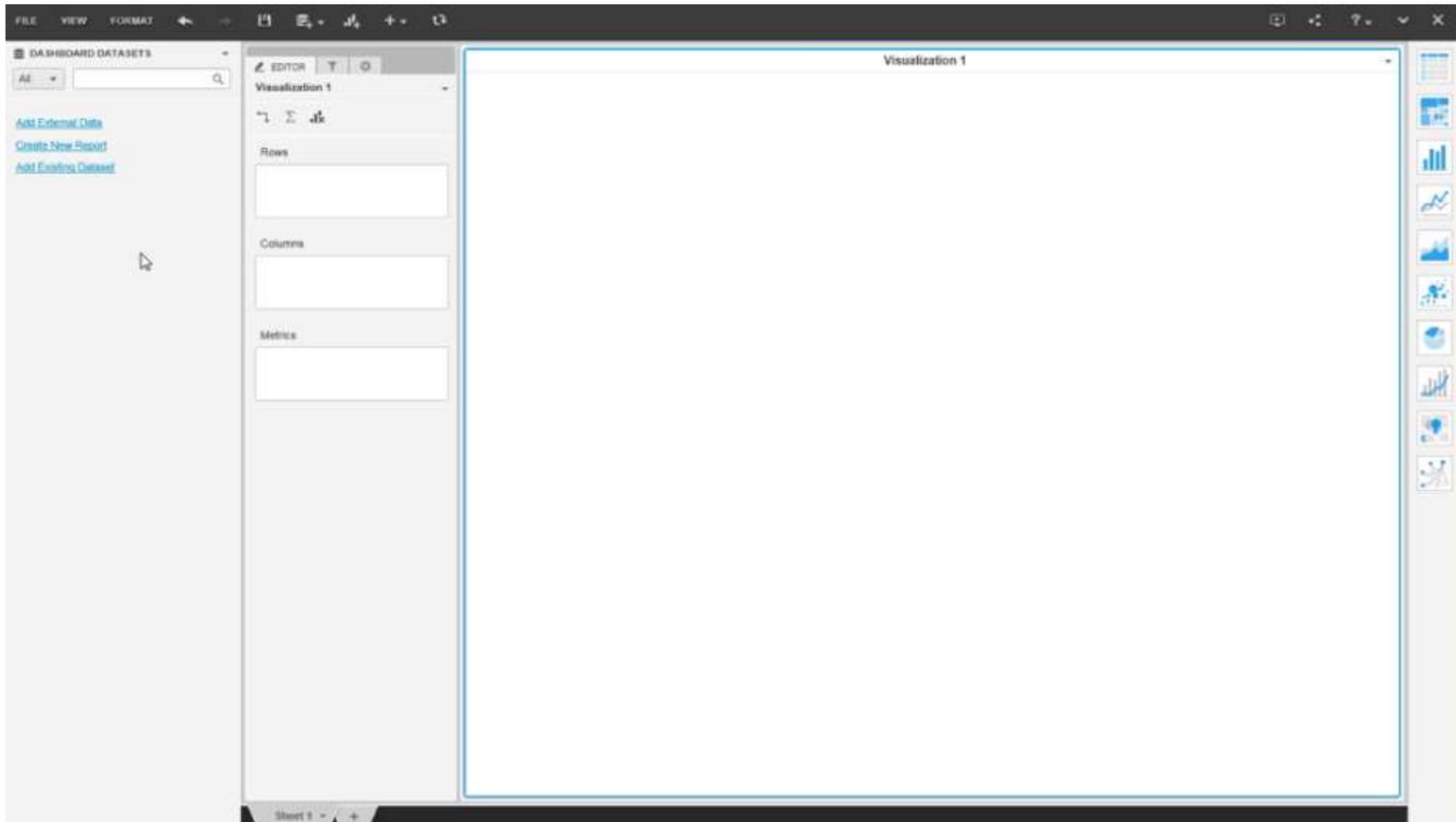
- Admissions (Current Period)

Visualization 2

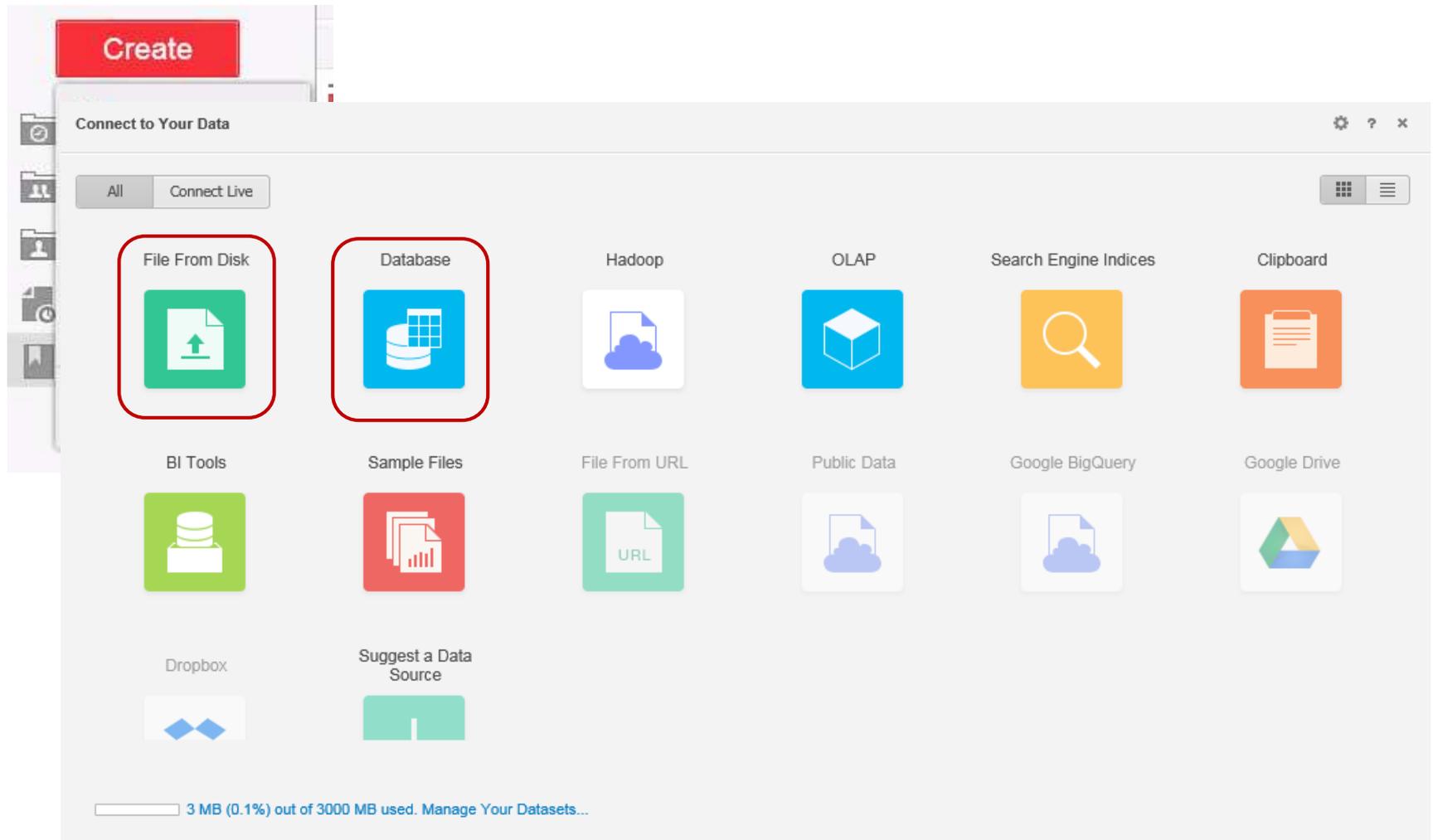
Inpatient Service	Admissions (Current Period)
Coronary Care Unit	946
Geropsychiatry	227
Intensive Care Unit	243
Med Surg	1,389
Nursery	294
Womens and Children	341



Build a new dashboard



Using external data



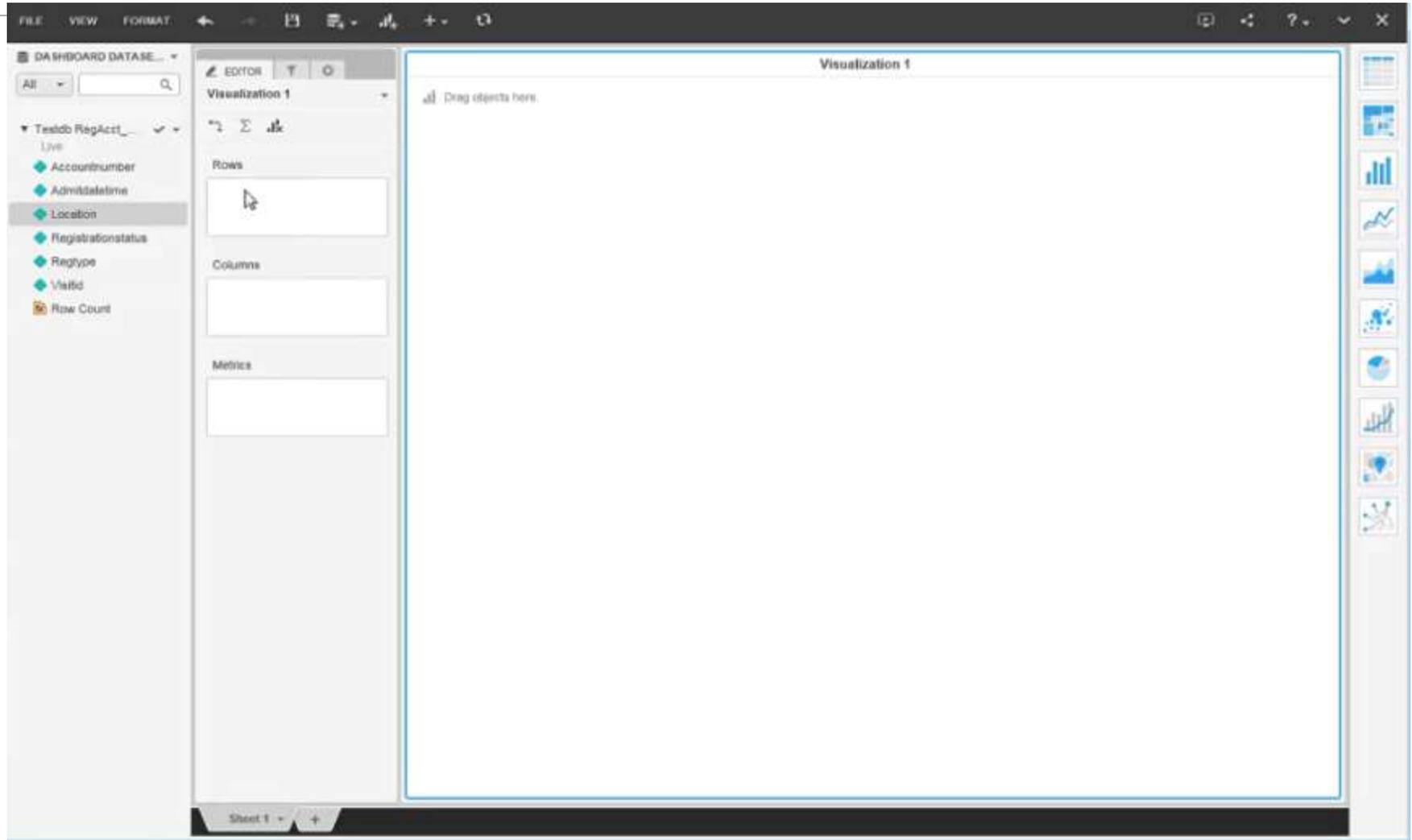
Using external data (from DR)

The screenshot shows a web application interface for 'My Subscriptions'. The breadcrumb navigation is 'FRO_LIVE > My Subscriptions'. The user is identified as 'Mathew Ozanski'. The main content area is titled 'Personal view subscriptions' and contains a table with the following data:

Subscription Name	Report/Document	Owner	Address	Personalized	Action	Unsubscribe
 Surgery - Overview (6.1) 5/4/2018	Surgery - Overview (6.1)	Mathew Ozanski				<input type="checkbox"/>

The left sidebar contains a 'Create' button and a list of navigation items: Recents, Shared Reports, My Reports, History List, and My Subscriptions (which is currently selected). The bottom of the interface has a navigation bar with a left arrow and a right arrow.

Using external data (from DR)



Using external data (from DR)

The screenshot shows the AcmeWare dashboard editor interface. On the left, a sidebar lists fields for 'Testob RegAcct' including Accountnumber, Admitdatetime, Location, Registrationstatus, Regtype, Visid, and Patients. The 'Patients' field is selected. The main editor area shows a table visualization titled 'Visualization 1' with the following data:

Regtype	IN	INO	NB
Location	Patients	Patients	Patients
CCU	3	2	-
ICU	2	1	-
NURSERY	-	-	2
SPS	5	-	-
WCH	2	1	-

The interface includes a top menu bar (FILE, VIEW, FORMAT), a left sidebar with a search bar, and a right sidebar with visualization icons. The bottom status bar shows 'Sheet 1'.

Using external data (from DR)

The screenshot shows the AcmeWare dashboard editor interface. On the left, a 'DASHBOARD DATABASE' sidebar lists various data fields, with 'Patients' selected. The central 'EDITOR' pane shows the configuration for 'Visualization 1', including a 'Rows' section with a 'Drag objects here' prompt, a 'Columns' section with 'Location' and 'Metric Names' selected, and a 'Metrics' section with 'Patients' selected. The main visualization area displays a table with the following data:

Location	CCU	ICU	NURSERY	SPII	WCH
Regtype	Patients	Patients	Patients	Patients	Patients
IN	3	2	-	5	2
INO	2	1	-	-	1
NB	-	-	2	-	-

Benefits of using DR directly

- If you're already using DR...you know the data.
- BCA datasets tend to be general purpose. Building your own from DR is more tightly controlled.
- You may have SQL code already built that you can re-use.



Wrangle external data

The screenshot displays the 'My Subscriptions' page in the AcmeWare application. The interface includes a navigation sidebar on the left with options like 'Recents', 'Shared Reports', 'My Reports', 'History List', and 'My Subscriptions'. A 'Create' button is visible at the top left. The main content area is titled 'Personal view subscriptions' and contains a table with the following data:

Subscription Name	Report/Document	Owner	Address	Personalized	Action	Unsubscribe
Surgery - Overview (6.1) 5/4/2018	Surgery - Overview (6.1)	Mathew Ozanski				<input type="checkbox"/>



Wrangle external data

Wrangle Your Data Set Sample Size

Select Column Select Function

Suggestions

History Script Reset to Initial Data

- 0) Delete Column [Patient Portal for 1Q 2018]
- 1) Rename Column [Column 1] To (AcctNum)
- 2) Rename Column [Column 3] To (Logged)
- 3) Rename Column [Column 4] To (Downloaded)

AcctNum	Logged	Downloaded	OptIn
A00000000026	1/1/2018	1/3/2018	Yes
A00000000034	1/2/2018	1/4/2018	Yes
A00000000042	1/3/2018	1/5/2018	Yes
A00000000059	1/4/2018	1/6/2018	No
A00000000067	1/5/2018	1/7/2018	Yes
A00000000075	1/6/2018	1/8/2018	No
A00000000091	1/7/2018	1/9/2018	Yes
A00000000146	1/8/2018	1/10/2018	No
A00000000216	1/9/2018	1/11/2018	Yes
A00000000208	1/10/2018	1/12/2018	No
A00000000224	1/11/2018	1/13/2018	Yes
A00000000257	1/12/2018	1/14/2018	Yes
A00000000240	1/13/2018	1/15/2018	No
A00000000299	1/14/2018	1/16/2018	Yes
A00000000281	1/15/2018	1/17/2018	No
A0000000031E	1/16/2018	1/18/2018	Yes
A00000000349	1/17/2018	1/19/2018	Yes
A00000000372	1/18/2018	1/20/2018	No

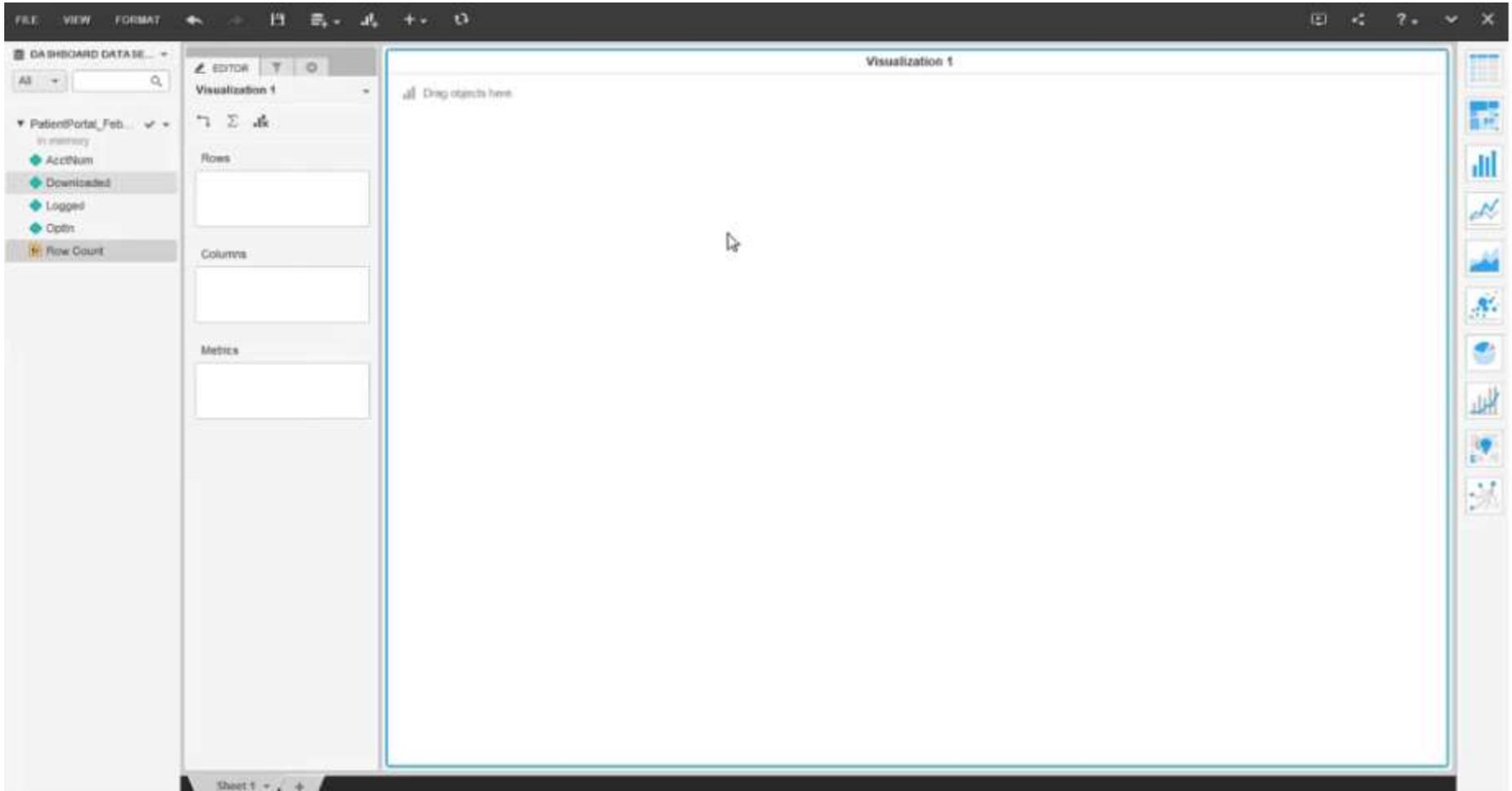
1 - 50 of 65 rows

Page 1 / 2

OK Cancel



Put it together



Put it together

The screenshot displays a dashboard builder interface with the following components:

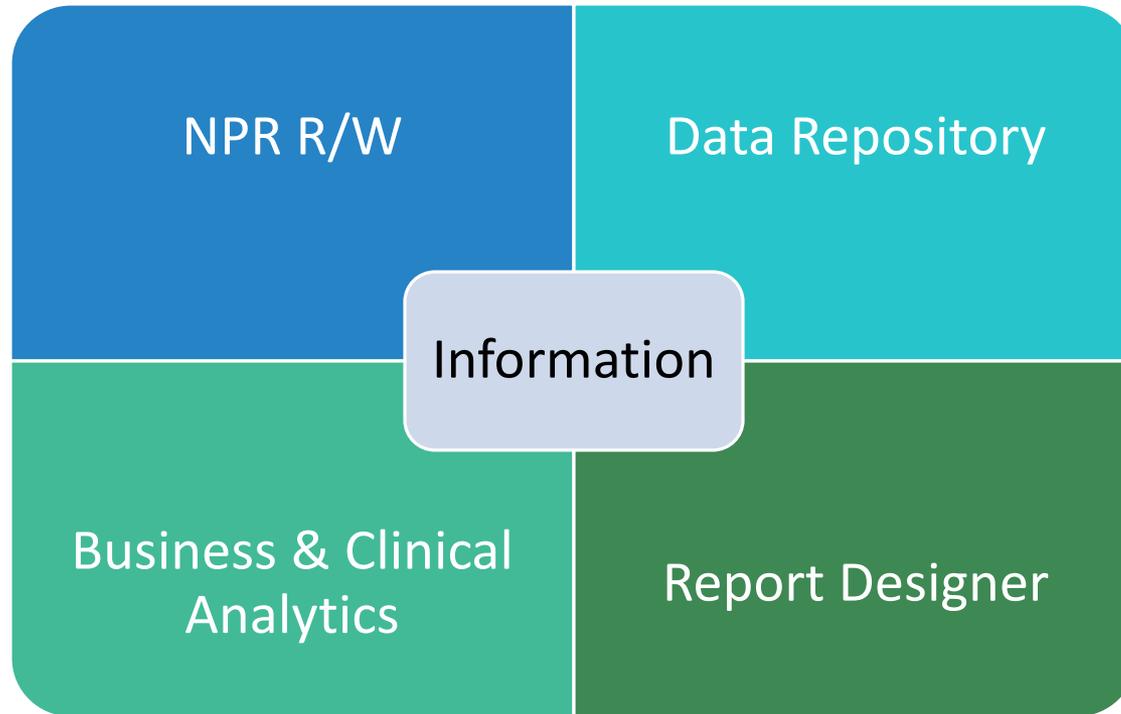
- Dashboard Datasets:** A list on the left includes 'PatientPortal_Feb2018' (in memory) with fields like 'AccNum', 'Downloaded', 'Logged', 'OptIn', and 'Row Count'. Another dataset is 'Testdb_RegAcct_Main' with fields like 'Accountnumber', 'Admitdatefime', 'Location', 'Registrationstatus', 'Regtype', 'Visited', and 'Patients'.
- Editor Panel:** Titled 'Visualization 1', it contains:
 - Rows:** An empty text box for defining row filters.
 - Columns:** A dropdown menu currently showing 'Metric Names'.
 - Metrics:** A list where 'Patients' is selected and highlighted in yellow.
- Visualization Area:** A large white space titled 'Visualization 1' containing a single data point: 'Patients' with a value of '64'.
- Right Sidebar:** A vertical toolbar with icons for various chart types: bar chart, line chart, area chart, pie chart, and scatter plot.

Some notes on external data



- Don't bring in anything you don't need.
- Clean the data as much as possible before importing it.
- If possible, use DR as a staging area to import data first, then link directly from Visual Insight.

Final thoughts...



- MEDITECH has several reporting options – be sure to understand the benefits and limitations of each of them.

Discussion, Q&A



Thank you!

Look for our MUSE sessions



- Tuesday, May 29
 - 702 - Custom BCA Dashboards with Visual Insight
 - 703 - The Alphabet Soup of Clinical Quality Measures Reporting and Reimbursement: 2018 Updates
 - 704 - Soup to Nuts - Data Repository 101
 - 802 - Report Designer Fundamentals
 - 804 - Soup to Nuts – Data Repository 102
- 1010 Revenue Cycle Optimization: Tools and Strategies for Success – Wednesday 2:30 pm
- 1087 HIE: Effective Integration and Interoperability – Thursday 1:45 pm
- 1104 The DR Overnight DBA – Thursday 2:45 pm
- 1091 Electronic Reporting: Quality Management Cycle Concepts that Achieve Reliable Results – Friday 9:00 am
- 1103 The Report Request Lifecycle – Friday 10:00 am

