Acmeware Est.1998

701: Microsoft Power BI Fundamentals

Presented by: Ian Proffer and Dan Deatrick

Sunday, May 15, 9:30-12:00

2022 MUSE Inspire Conference

May 15-18 Gaylord Texan Resort & Convention Center | Dallas, TX

Welcome back! Come see our education sessions:

Day	Date	Time	Room	Session
Monday	May 16	2:30-3:25	Grapevine 6	1007 - Power BI and DR
Tuesday	May 17	10:00-10:55	Austin 4	1062 - Improve Quality Performance
Wednesday	May 18	10:00-10:55	Austin 4	1057 - Microsoft's Power Platform (Northeastern VT)
		11:00-11:55	Grapevine 6	1097 - OR Utilization Analysis (Northwestern Medical Center)

Our Agenda

- Overview of Power BI applications and services
- Power BI Desktop and Power BI service
- Report design in detail
- Hands-on: build a report
- Sharing reports with the PBI service
- Discussion and wrap-up

Introductions

- A little about me and Acmeware
- A little about you
  - Your role working with MEDITECH
  - Your reporting experience

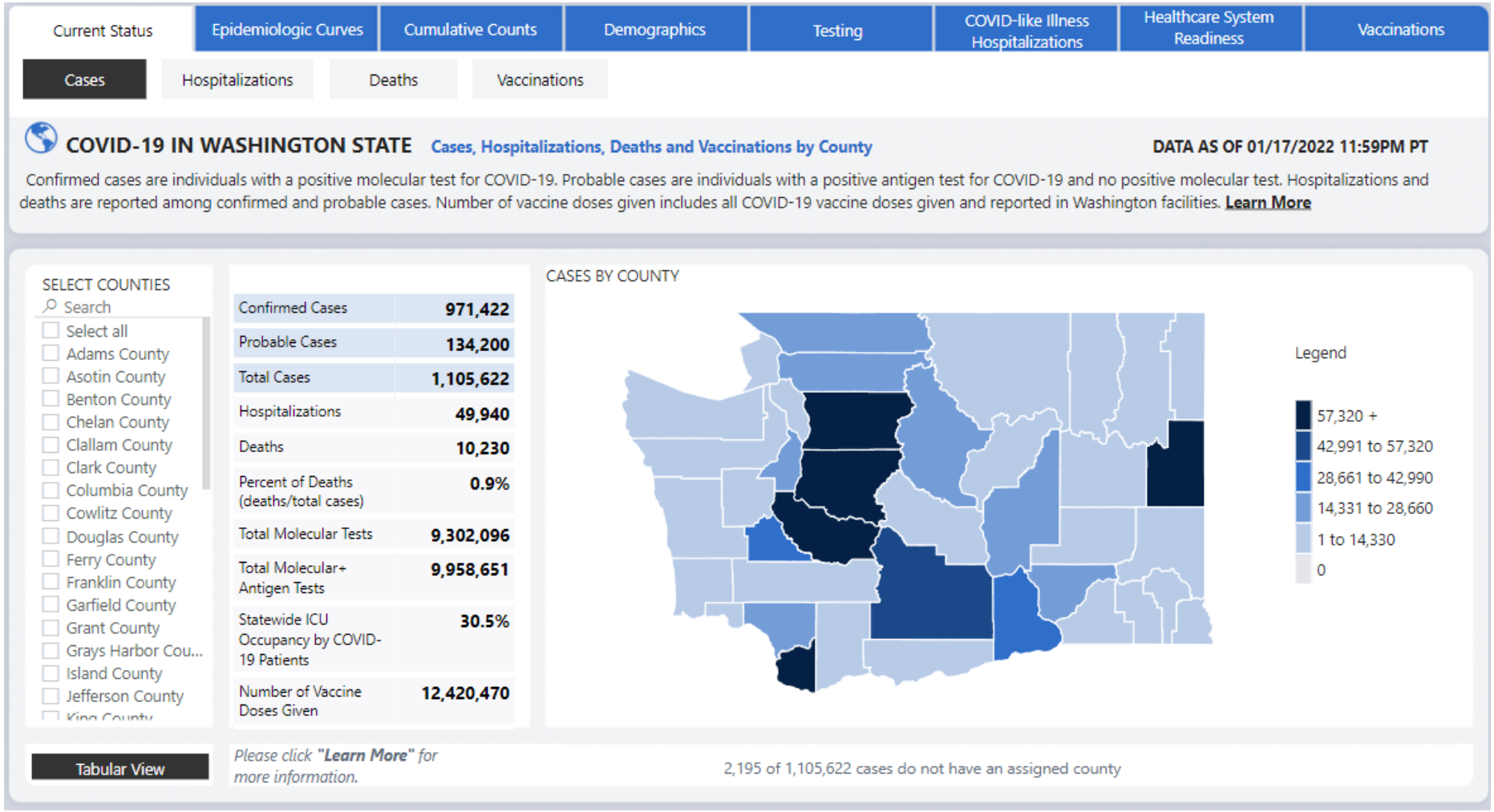
What is Power BI?

- **Power BI** is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Power BI lets you easily connect to your data sources, visualize and discover what's important, and share that with anyone or everyone you want.
- https://docs.microsoft.com/en-us/power-bi/fundamentals/power-bi-overview

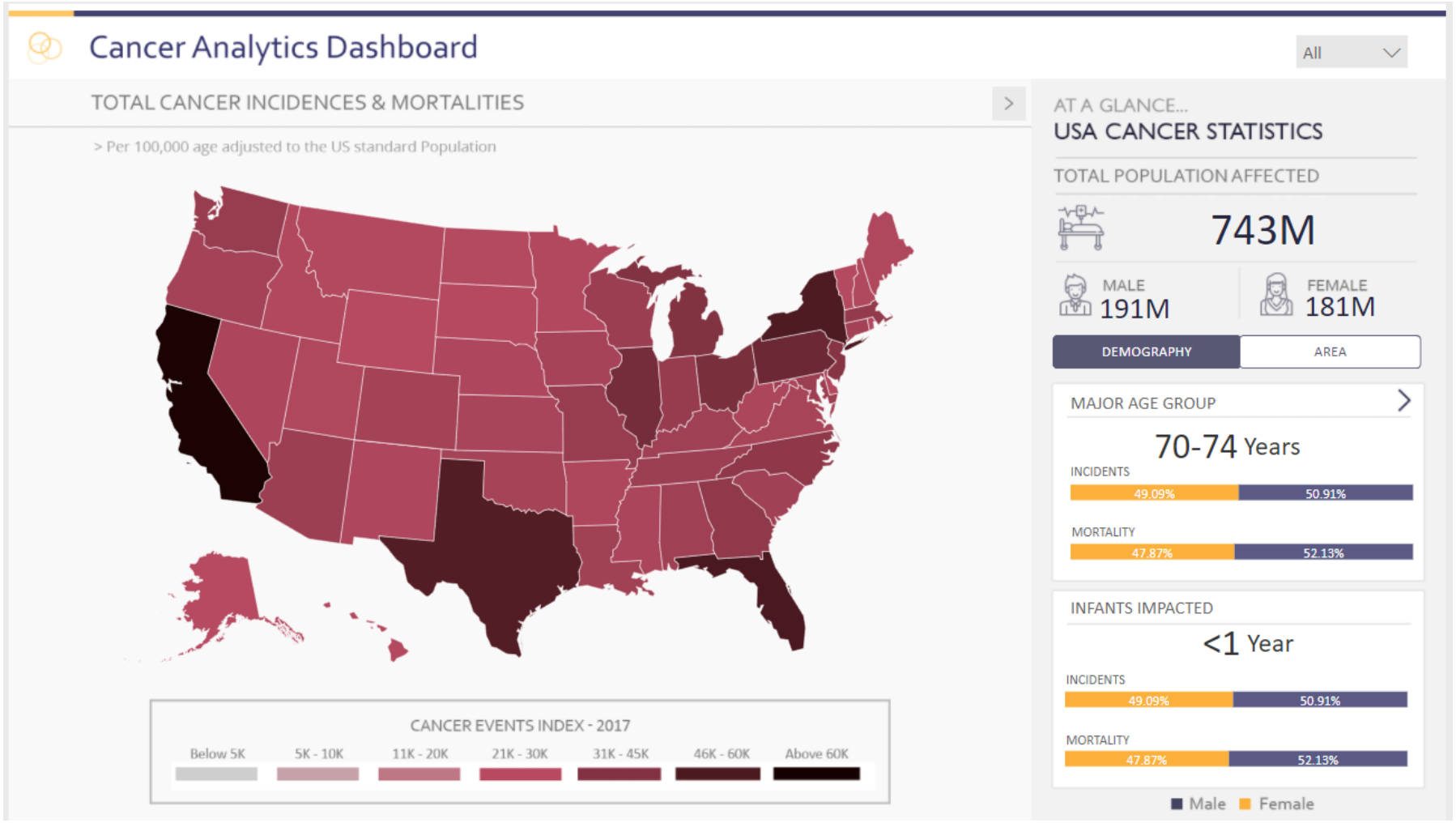
History of Power BI

- Initially conceived by SSRS team in 2010
- Power BI for Office 365 in 2013
  - Based on Excel Power Query, Power Pivot and Power View
  - Shift to cloud-based analytics and visuals in 2015

Power BI in Healthcare



Power BI in Healthcare



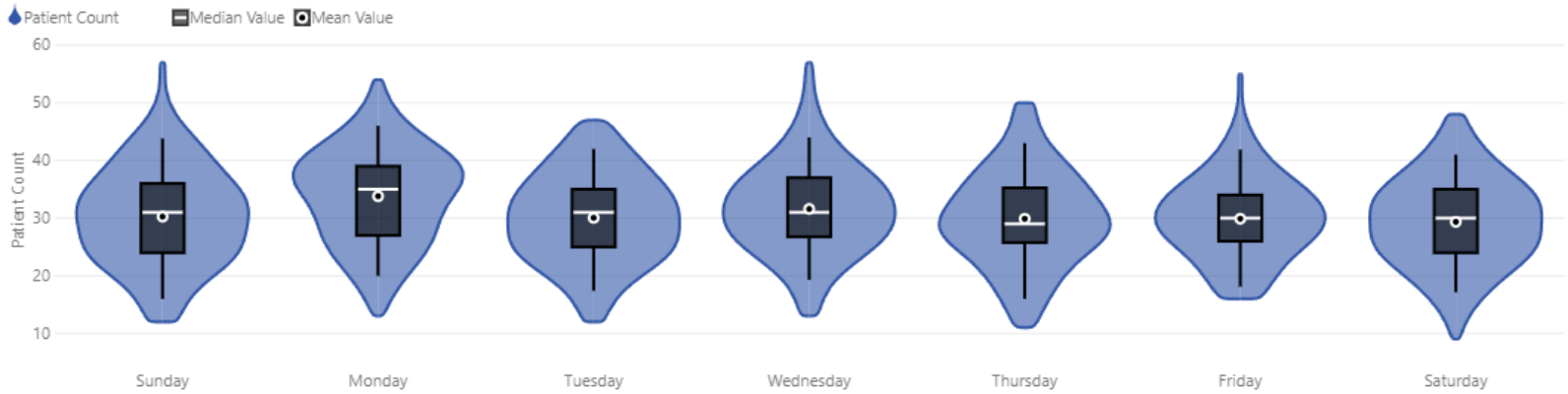
Power BI in Healthcare

12/22/2019 12/22/2021

Day of Week

All

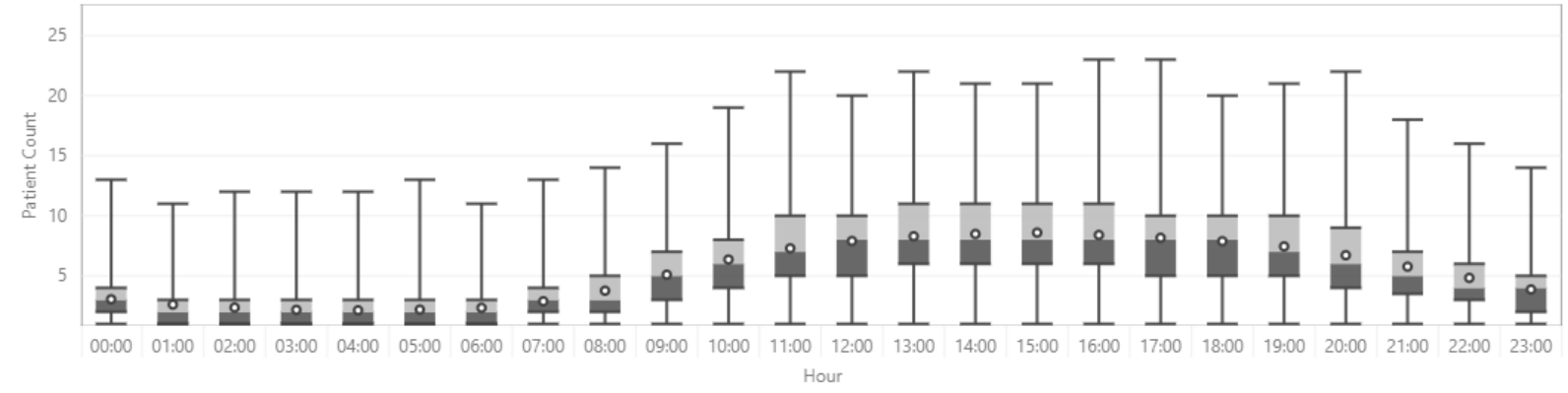
Patient Registrations by Day



Registrations by Day

Day	Avg	Range
Sunday	30	22-39
Monday	34	26-42
Tuesday	30	22-38
Wednesday	32	24-40
Thursday	30	22-38
Friday	30	23-37
Saturday	29	22-37
Total	**31**	**23-39**

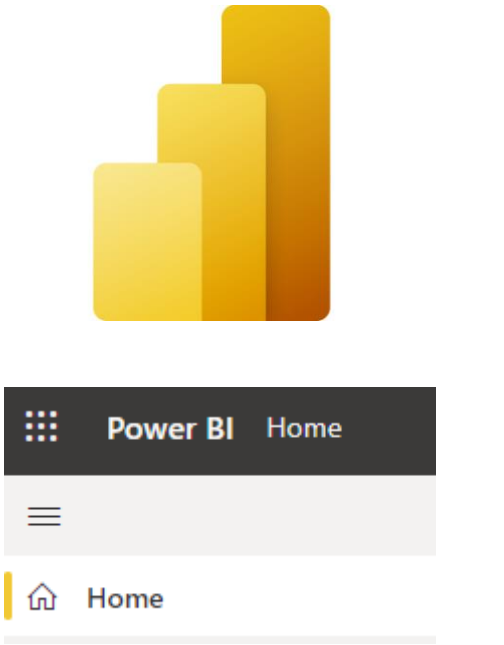
Patient Volume by Hour



Patient Volume by Hour

Hour	Avg	Range
00:00	3	1-5
01:00	3	1-4
02:00	2	1-4
03:00	2	1-3
04:00	2	1-3
05:00	2	1-4
06:00	2	1-4
07:00	3	1-5
08:00	4	2-6
09:00	5	3-8
10:00	6	3-9
11:00	7	4-11

Power BI apps and services



- A Windows desktop application called **Power BI Desktop**
- An online SaaS (Software as a Service) service called the **Power BI service**
- Power BI mobile apps for Windows, iOS, and Android devices

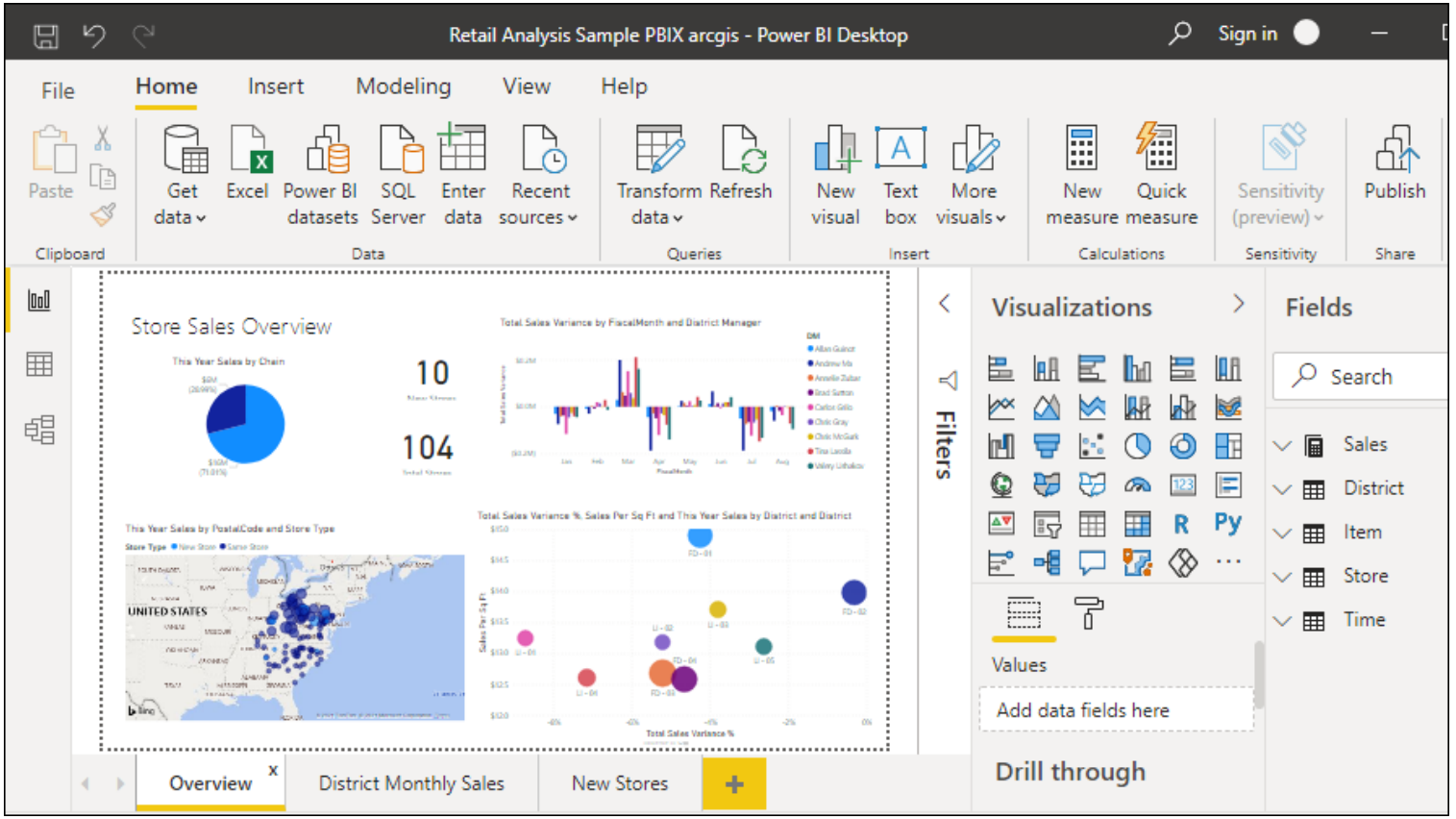
Power BI apps and services

- **Power BI Report Builder**, for creating paginated reports to share in the Power BI service
- **Power BI Report Server**, an on-premises report server where you can publish your Power BI reports, after creating them in Power BI Desktop

Power BI Desktop

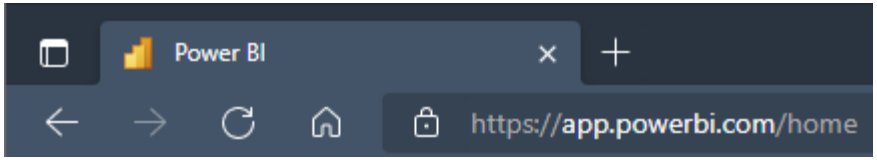
Power BI Desktop

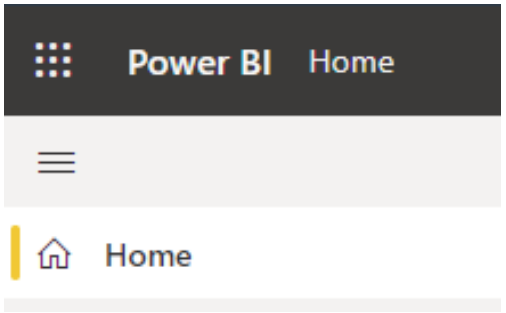
- A free desktop application that lets you connect to, transform, and visualize your data.



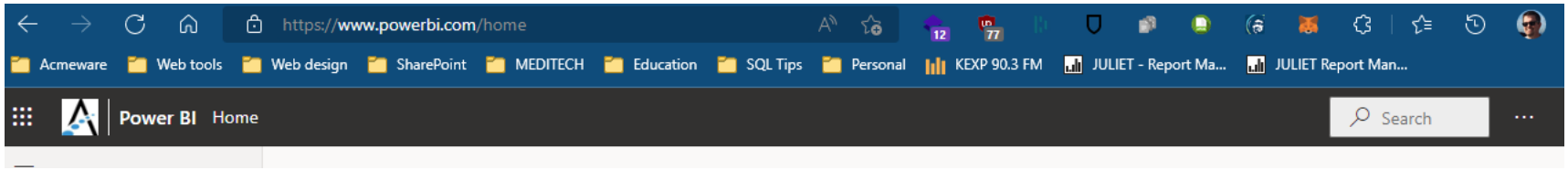
Power BI service

- Where you publish dashboards and share them across your organization. Dashboards and reports connect to datasets that bring all the relevant data together in one place.
- The service has some report creation abilities too but is more limited than Power BI Desktop.





https://www.powerbi.com/home



Select measure(s)

- FUH
- HBIPS-2
- HBIPS-3
- HBIPS-5
- IMM-2

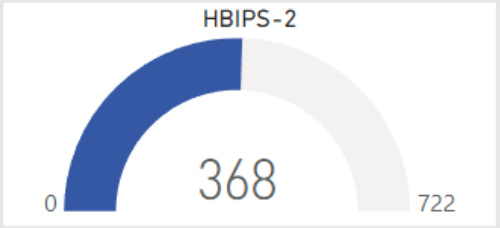
Select a month

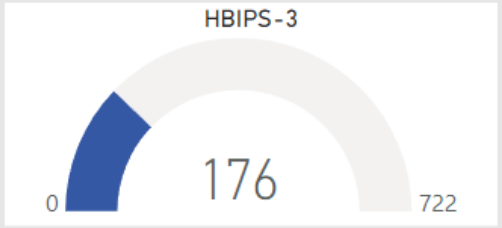
- 2020
  - January
  - February
  - March

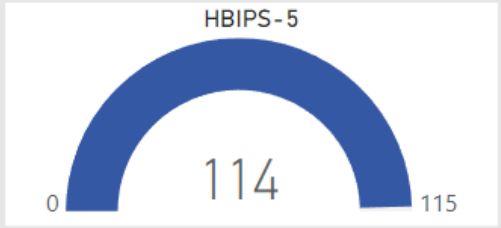
Inpatient Psychiatric Facility - Quality Reporting

Measure info

Measure	Measure_Description	Numerator	Denominator
HBIPS-2	Hours of Physical Restraint Use	368	722
HBIPS-3	Hours of Seclusion Use	176	722
HBIPS-5	Patients Discharged on Multiple Antipsychotic Medications	114	115







Numerator:
Hours psychiatric inpatients in restraints

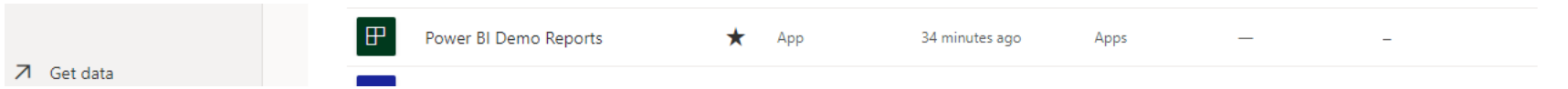
Denominator:
Psyciatric inpatient days

Numerator:
Hours psychiatric inpatients in seclusion

Denominator:
Psyciatric inpatient days

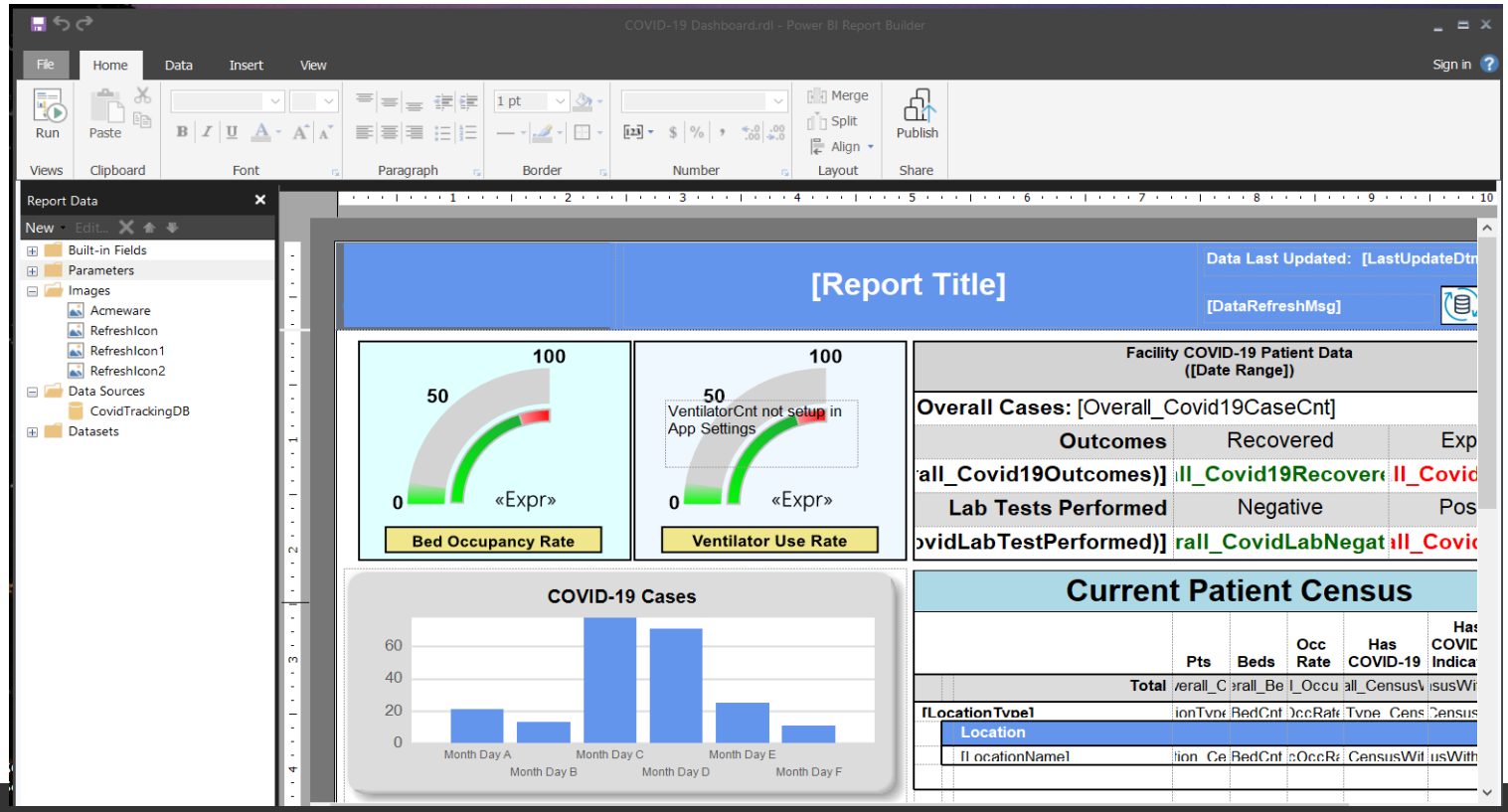
Numerator:
Psychiatric inpatients discharged on >=2 antipsychotic medications with justification

Denominator:
Psychiatric inpatients discharged on >=2 antipsychotic medications



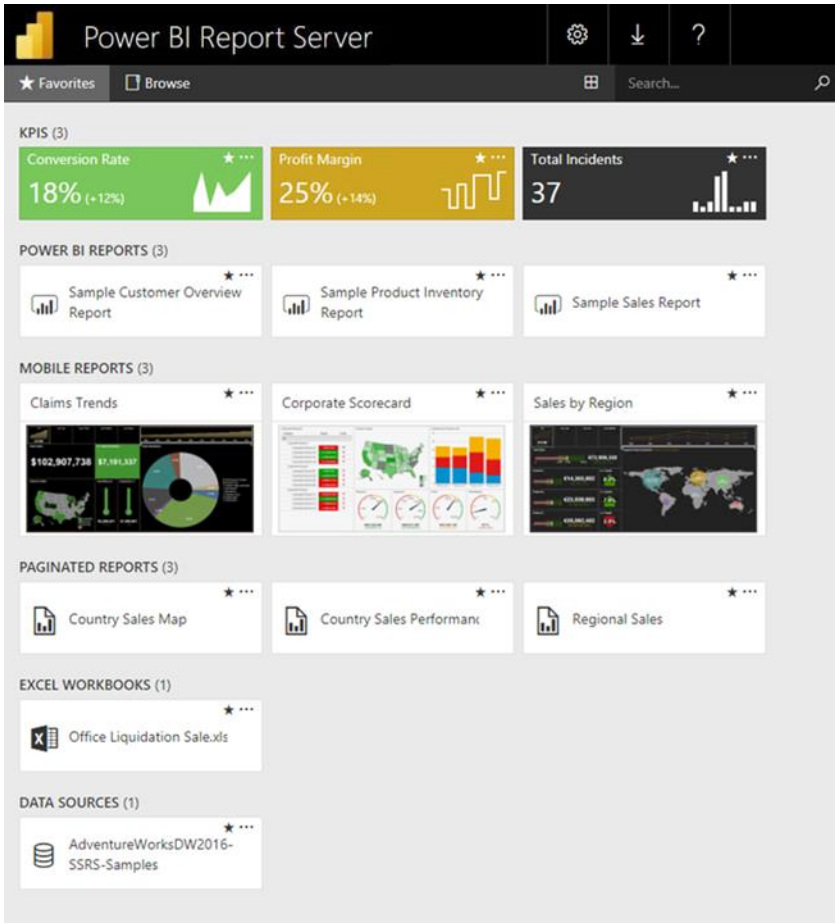
Power BI Report Builder

- A standalone desktop application for designing and publishing *paginated* reports to the Power BI server. Surprise, it's the rebranded "Microsoft Report Builder."
- https://docs.microsoft.com/en-us/power-bi/paginated-reports/report-builder-power-bi



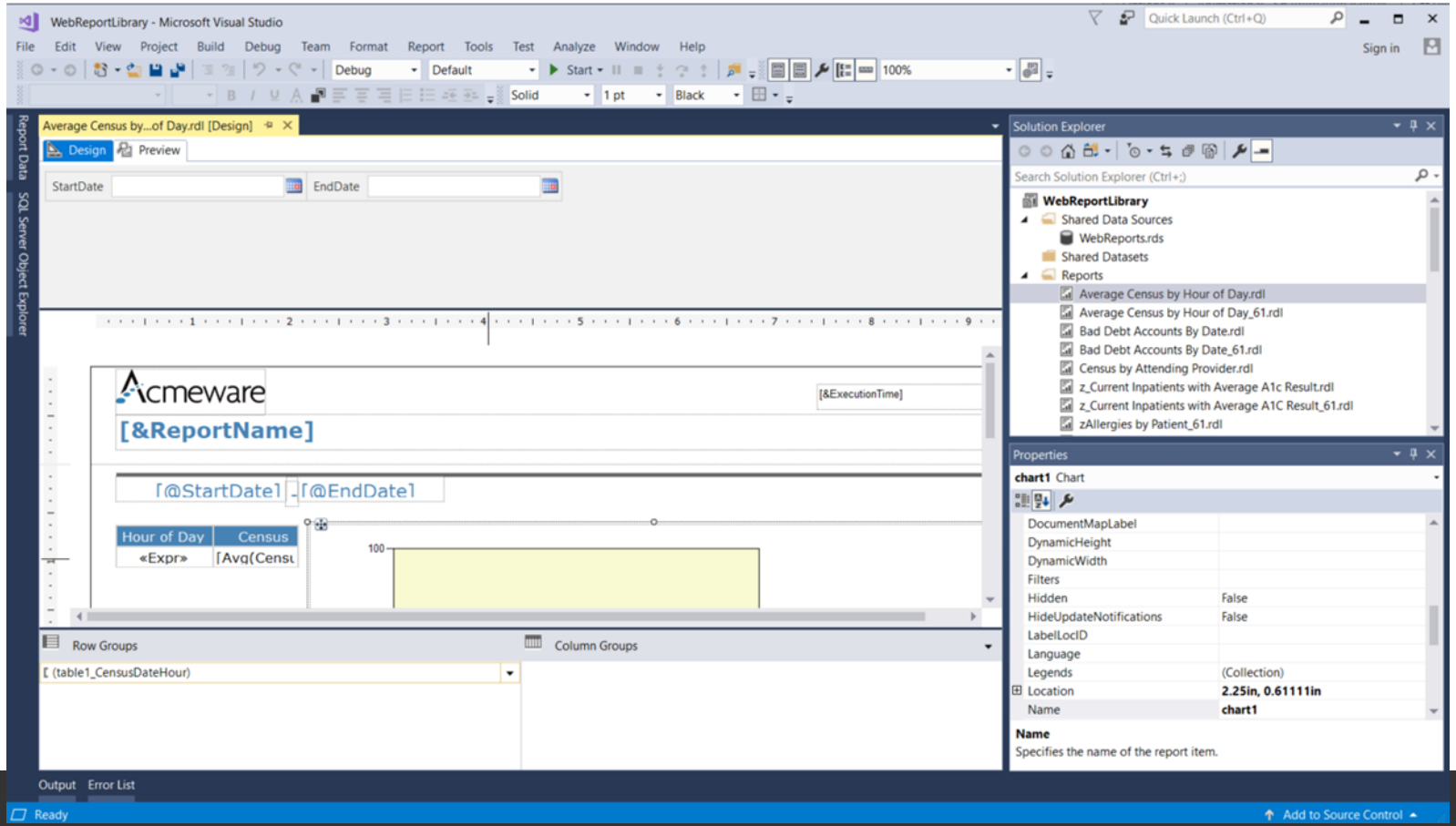
Power BI Report Server

- Power BI Report Server is an on-premises report server with a web portal in which you display and manage reports and KPIs. Along with it come the tools to create Power BI reports, paginated reports, mobile reports, and KPIs.

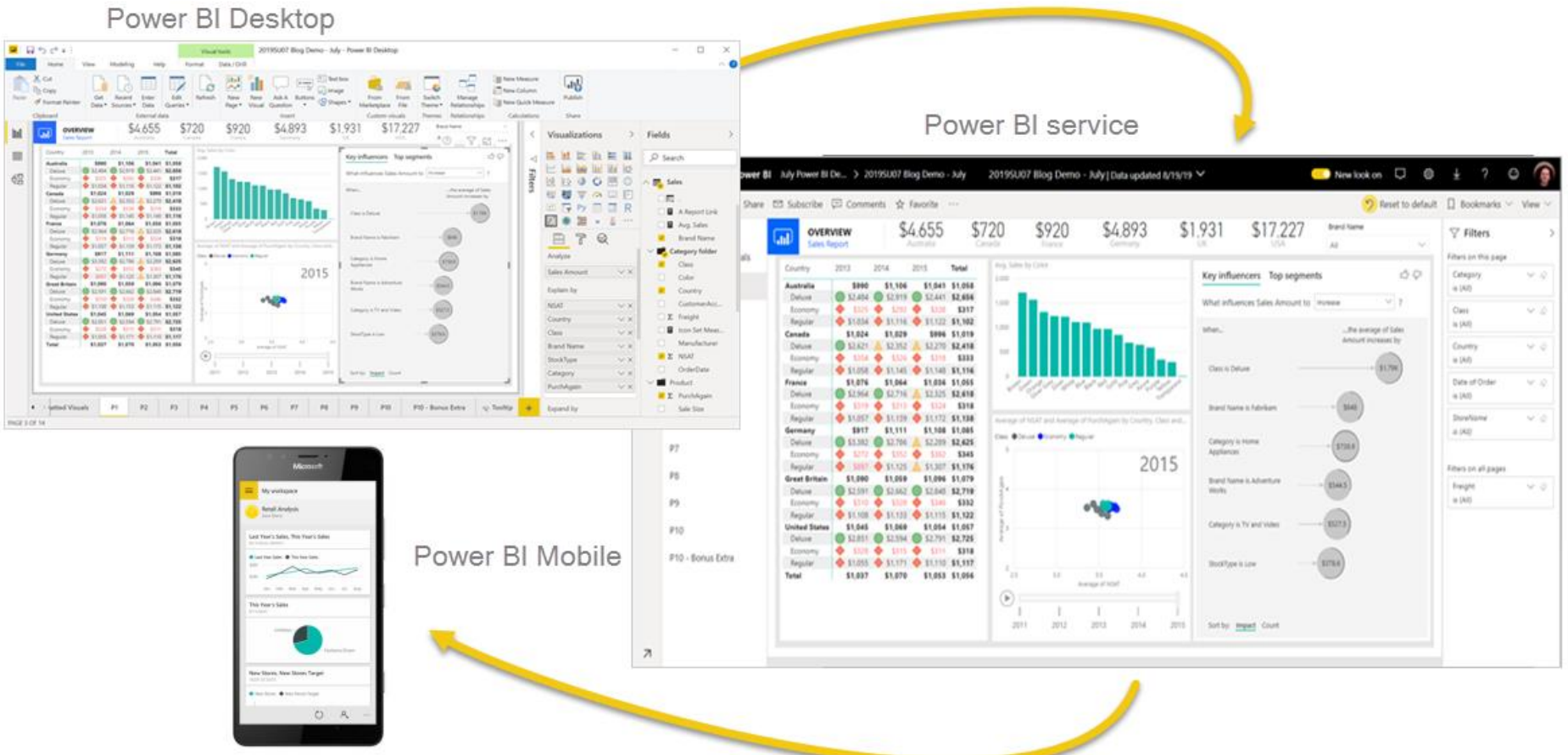


Wait…what about SSRS?

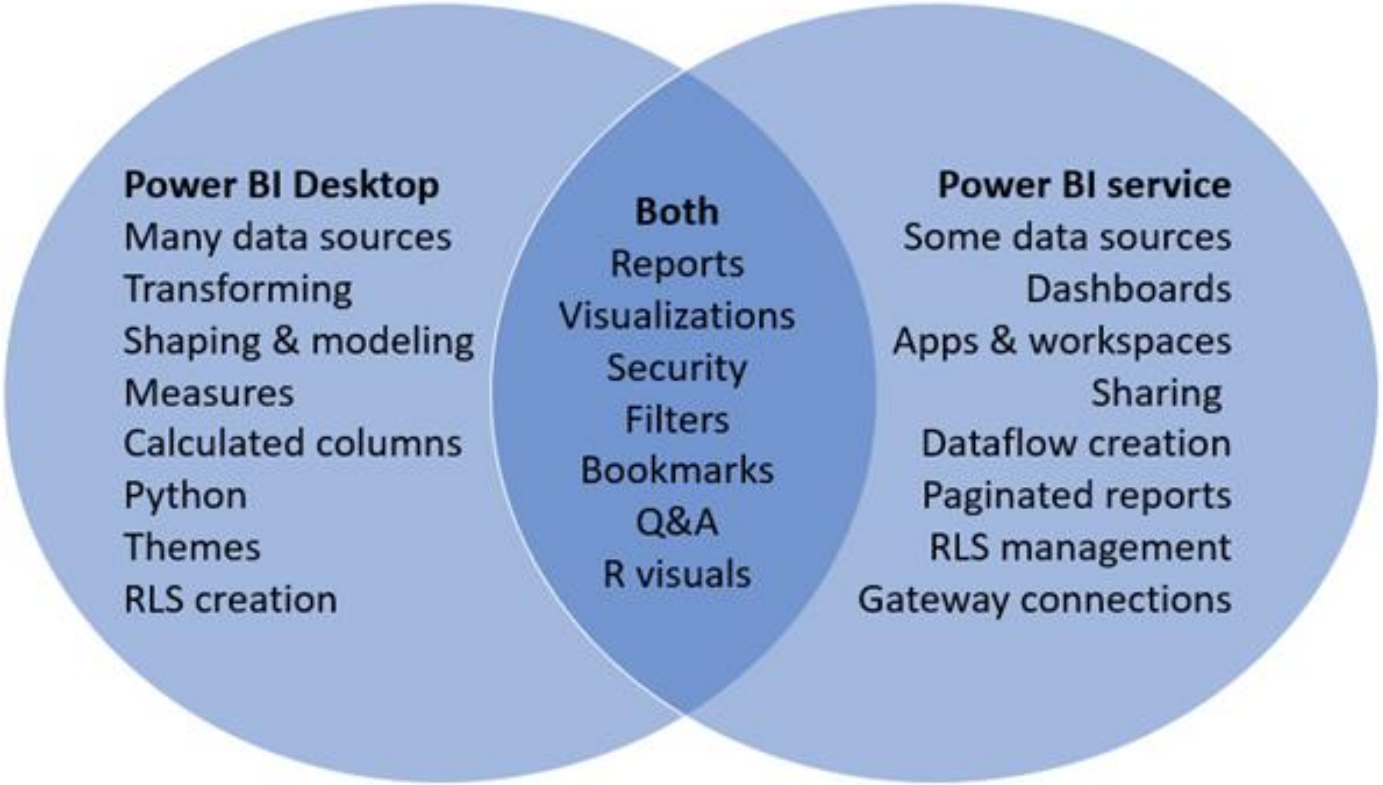
- What's up with SQL Server Reporting Services? (SQL Server Data Tools/Visual Studio and the Report Manager/Report Server/web portal)



Working with Power BI



Differences between Desktop and service



Questions and discussion

- About the Power BI applications and services

Walk through: Power BI Desktop

- Report design in detail

Shall we take a brief break?

Power BI Desktop terminology

- Visualizations (or visuals)
- Fields
- Filters
- Reports
- Dashboards

Let’s build a report

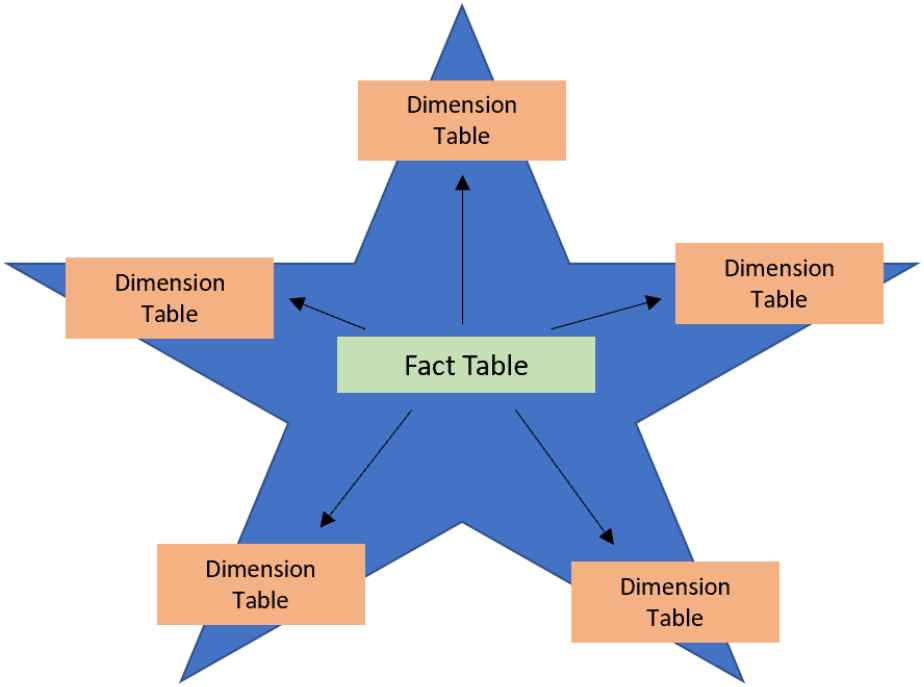
- Hands-on with Power BI Desktop

Sharing reports

- Reports are published from PBI Desktop to **workspaces** in the PBI service:
  - My workspace
  - Teams/M365 group workspaces
- Reports (and dashboards) can also be grouped into **Apps**, which lets you focus your users

The data model

- Do I need a star-schema to use Power BI?

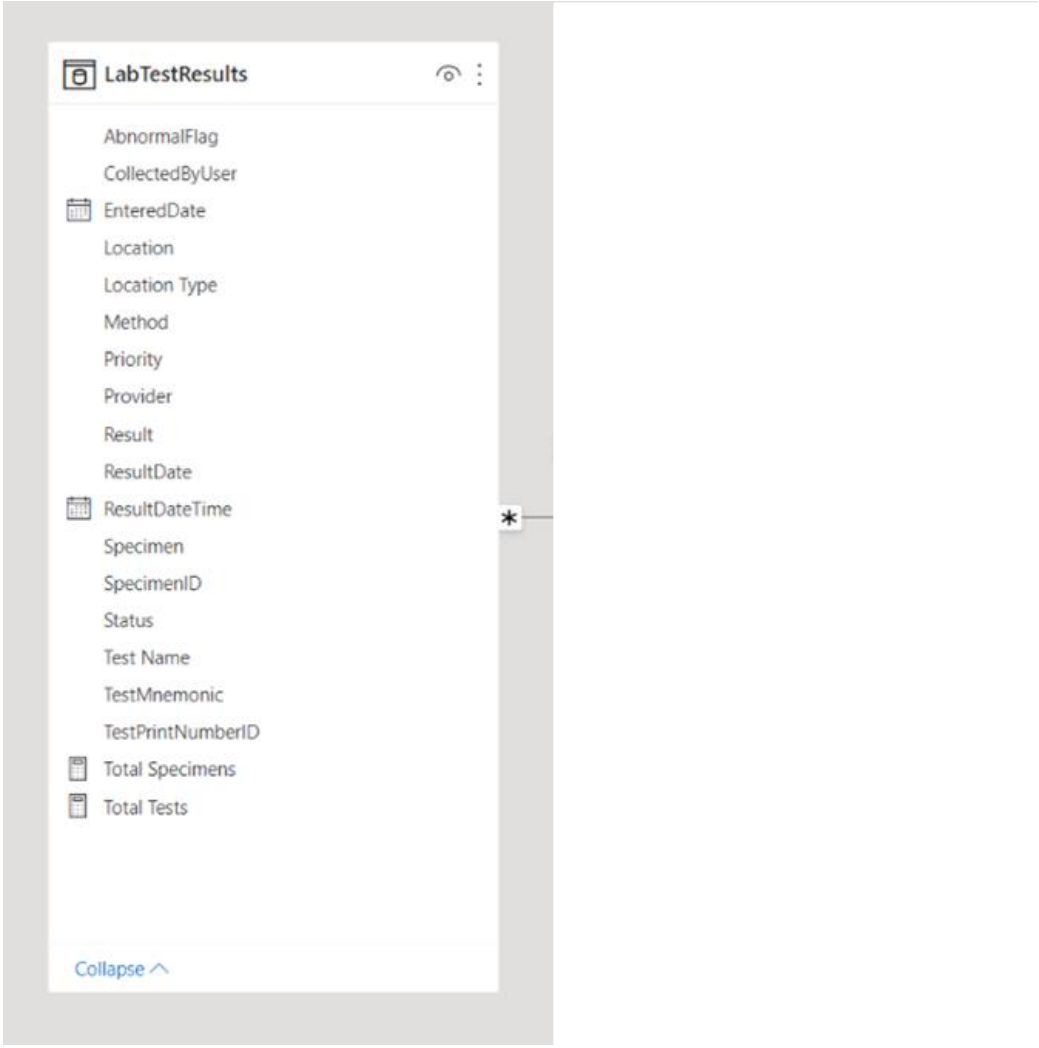


Why not “flatten” the model with TSQL?

```
SELECT
      LS.SpecimenID,
      LST.TestPrintNumberID,
      LS.SpecimenNumber
      ,DLT.Name AS TestName
      ,DLT.Mnemonic AS TestMnemonic
      ,LS.CollectedByUserID AS CollectedByUser
      ,LS.EnteredDateTime AS EnteredDate
      ,LST.ResultDateTime
     ,CAST(LST.ResultDateTime AS date) AS ResultDate
     ,LS.Priority
     ,LS.Status
     ,DMP.Name AS OrderingProvider
     ,DML.Name AS OrderLocation
     ,  CASE WHEN DML.Type = 'I' THEN 'Inpatient' WHEN DML.Type = 'O' THEN 'Outpatient' ELSE 'Other' END AS LocationType
     ,LST.MethodRW
     ,LST.ResultRW
     ,LST.AbnormalFlag
 FROM
    livendb.dbo.LabSpecimens LS
INNER JOIN livendb.dbo.LabSpecimenTests LST
    ON LS.SourceID = LST.SourceID
    AND LS.SpecimenID = LST.SpecimenID
INNER JOIN livendb.dbo.DLabTest DLT
    ON LST.SourceID = DLT.SourceID
    AND LST.TestPrintNumberID = DLT.PrintNumberID
INNER JOIN livendb.dbo.DMisLocation DML
    ON LS.SourceID = DML.SourceID
    AND LS.OrderLocationID = DML.LocationID
INNER JOIN livendb.dbo.DMisProvider DMP
    ON LS.SourceID = DMP.SourceID
    AND LS.SubmProviderID = DMP.ProviderID
WHERE
    LS.Status = 'COMP'
```

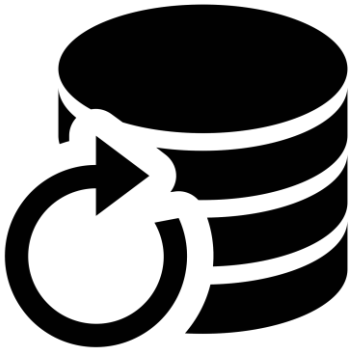
This stored procedure…

How it presents to Power BI Desktop



For our afternoon session…

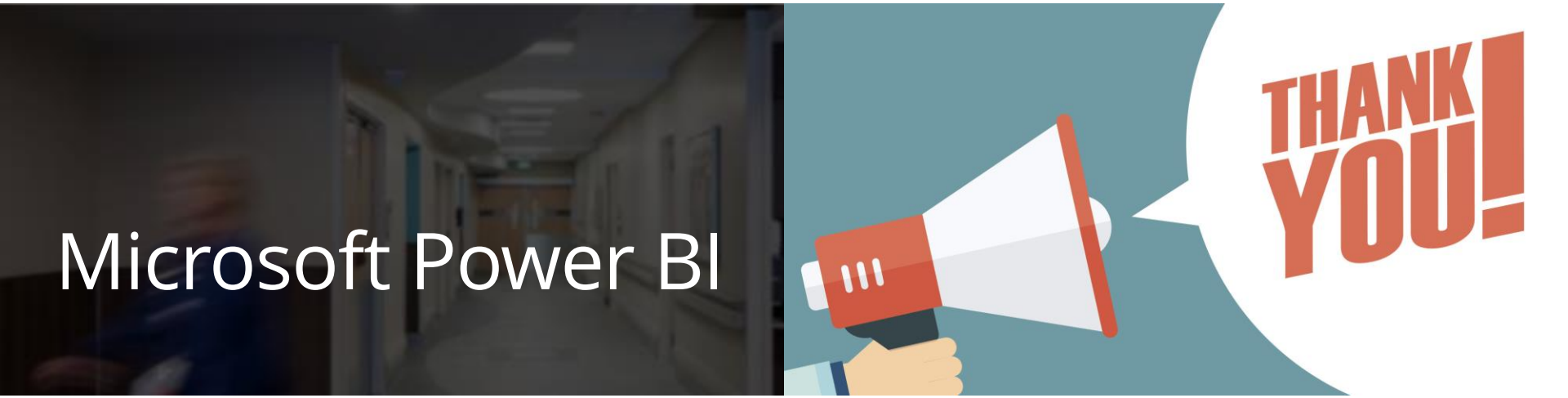
Right back in this room, from 1:00 – 3:30



- Power BI considerations for Data Repository
- Data model concepts and options
- Using SQL Server data sources

Open discussion

- What questions do you have?
- Do you have any real world DR problems I can help solve?



Keep in touch!

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Our website: https://acmeware.com