SUCCESS STORIES - SUMMARY

Project Name	Client	Brief Description	Services
Data Warehouse And BI Infrastructure Design And Implementation	Women's Healthcare Provider	Integrated both On-premises and Cloud Hosted EMR and Practice Management systems (eCW - eClinicalWorks, OrchardSoft, Paycom, etc.) with Azure Synapse Data Warehouse environment and built a centralized reporting infrastructure on Azure platform, to provide real-time visibility into the business operations	

Data Warehouse And BI Infrastructure Design And Implementation

(Women's Healthcare Provider)

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INTEGRATION OF EMR SYSTEM WITH AZURE DW FOR A WOMEN'S HEALTHCARE PROVIDER

ABOUT THE CLIENT

Client is a U.S.-based leading specialty women's health physician group offering patient care in obstetrics and gynecology

SITUATION

- Opportunity to **revamp the reporting capabilities that provide the executive team better transparency and insights to business performance**. Direct access was not available to RCM and EMR data, and team relied on Enterprise Business Optimizer (EBO) or front-end reports provided by ERP systems
- Merilytics partnered with the client to **build robust and scalable Datawarehouse by** integrating EMR/RCM data from eCW, Lab data from OrchardSoft Harvest and Payroll data from Paycom/Dayforce. This data infrastructure was leveraged to build out operations and RCM dashboards on Power BI

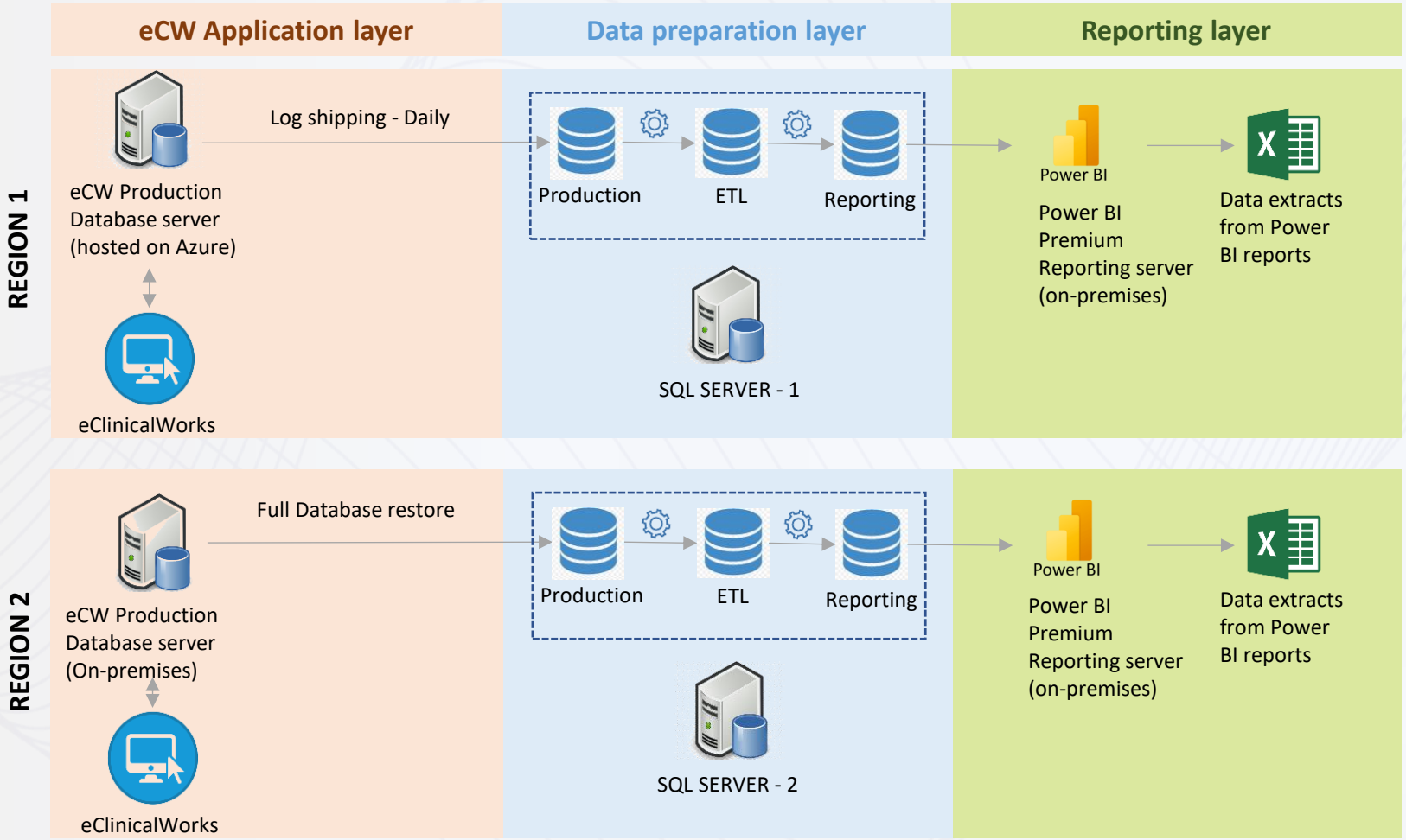
VALUE ADDITION

- Analyzed both **on-premises and Cloud based eCW data sources** and developed end-to-end BI infrastructure for supporting multiple verticals and providing centralized reporting solution
- Developed **more than 180+ secure data processing pipelines** on Azure Synapse for daily data capture. Created custom-coded ETL process for handling **Transaction log shipping process for cloud hosted eCW** integration using Azure VM
- Created **user friendly data models for custom report building** and created single source of truth in the form of **facts and dimension tables** across functions
- Developed **Power BI Dashboards for RCM and Operations functions along with** an executive dashboard encompassing critical KPIs across the company

IMPACT

- **Significantly reduced manual and time-consuming data management** processes by creating central repository that provides clean, sanitized, and transformed data. Also, **data integration from new verticals or regions became seamless.**
- **Reduction in time lag (from 2 days to 1 day) for data availability from eCW** which further helped the business team to work with the latest data
- **Provided better visibility into the business performance** by creating advanced consolidated dashboards and **provided flexibility to stakeholders** to extract essential data as per requirements from a central data repository

PRIOR DATA ARCHITECTURE



Observations on prior architecture:

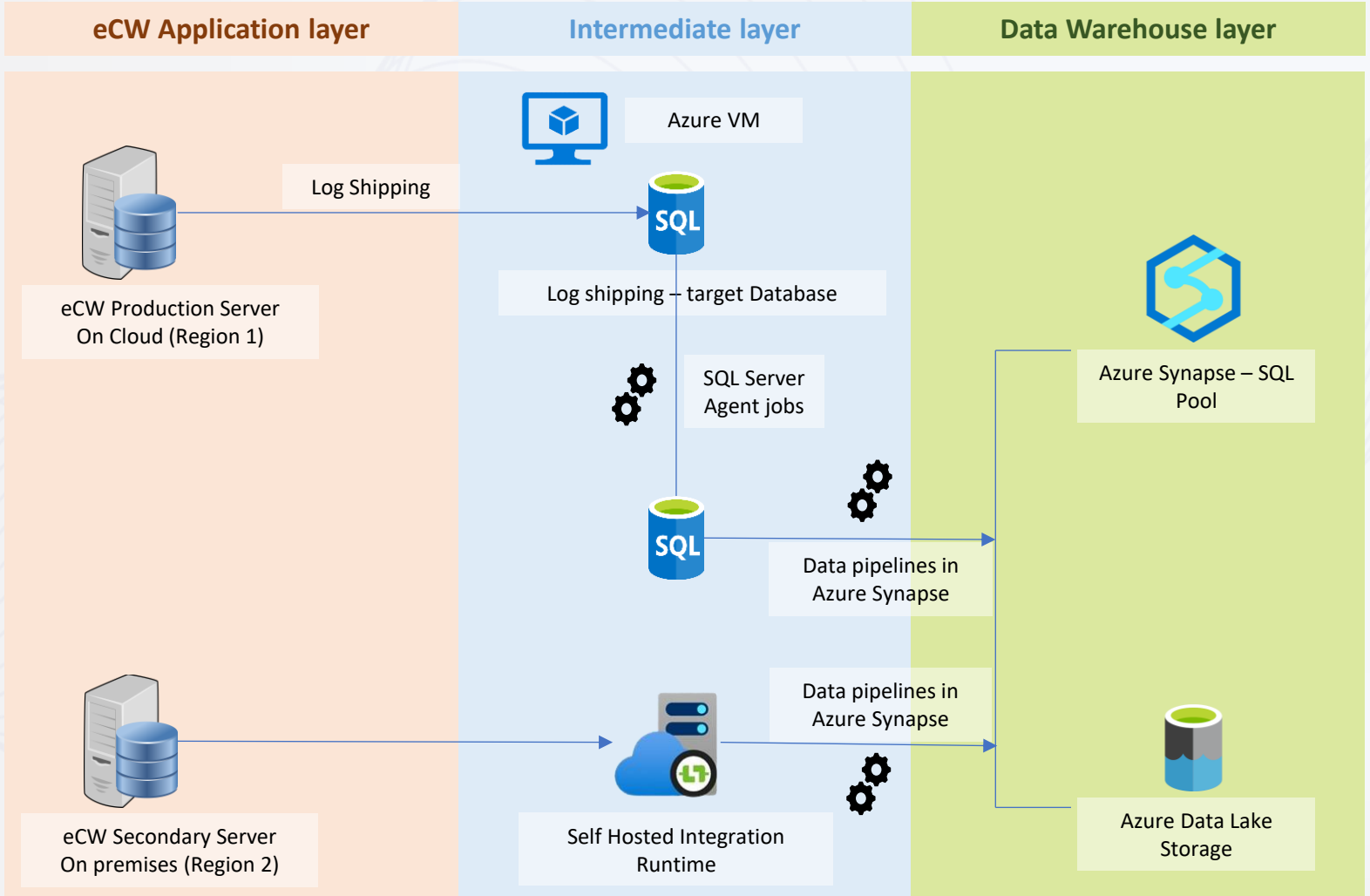
Data Structures

- Production database was hosted on **Azure cloud** for Region 1 and **on-premises server** in Region 2
- Client was restoring data in the on-premises environment using **incremental logs in Region 1** and **full database backup restore in Region 2**
- Set of 3 databases were used for data movement using SSIS packages and stored procedures

Reporting and Analytics

- Data from reporting database was used to feed "**paginated reports" (RDLs) on the Power BI reporting server (on-premises)**
- **Difficulty in consolidating** reports from two regions

METHODOLOGY/ APPROACH



Notes:

Region 1 – Cloud hosted eCW Server

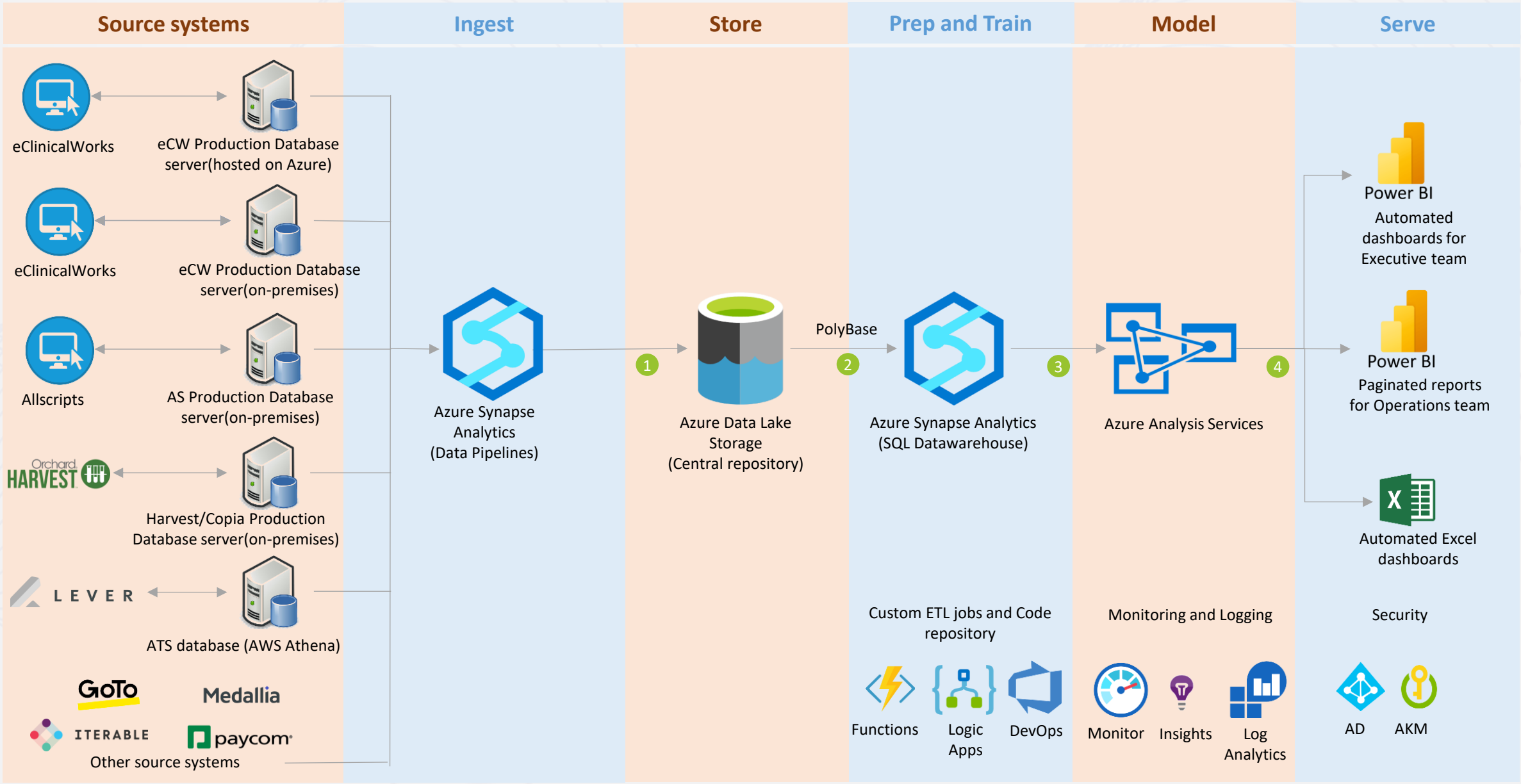
- Hosted two SQL Database on Azure VM, where the log shipping process is carried on and restored the Region 1 database.
- The selected tables for reporting are copied into a copy database.
- Data pipelines are created to ingest data into Azure Synapse on daily basis.
- Overall restoring and data capturing time is reduced to 1 day due to faster compute power on cloud and selective copy process instead of complete database restore.

Region 2 – On premises eCW Server

- Integration runtime is installed on Azure VM which creates link between Azure Synapse and Secondary server on eCW (eCW doesn't allow direct access to production from security standpoint).
- Data pipelines are created to ingest data into Azure Synapse on daily basis.

Data from Azure Synapse is then further used for data modeling and reporting.

OVERALL DATA ARCHITECTURE FRAMEWORK IMPLEMENTED



ILLUSTRATIVE DASHBOARD – PRIOR TO DATA ARCHITECTURE IMPLEMENTATION

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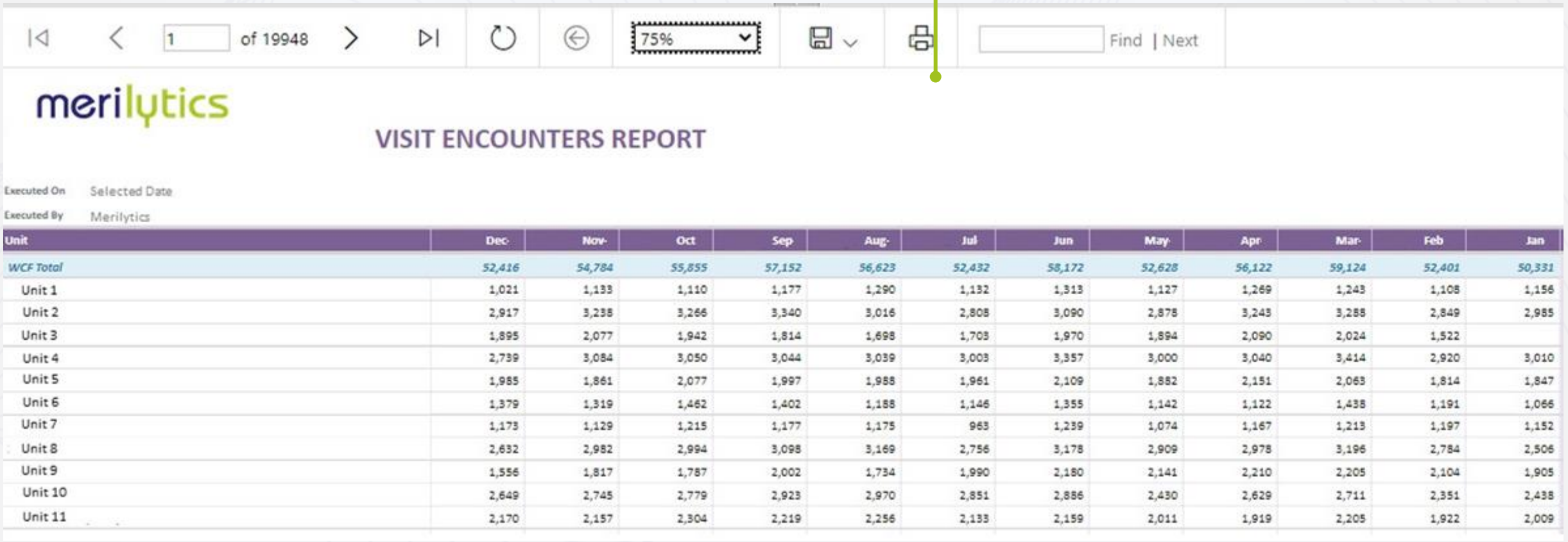
ILLUSTRATIVE

Separate report for each Region with no user selected slicers



Unit	Dec	Nov	Oct	Sep	Aug	Jul	Jun	May	Apr	Mar	Feb	Jan
WCF Total	*52,416*	*54,784*	*55,855*	*57,152*	*56,623*	*52,432*	*58,172*	*52,628*	*56,122*	*59,124*	*52,401*	*50,331*
Unit 1	1,021	1,133	1,110	1,177	1,290	1,132	1,313	1,127	1,269	1,243	1,108	1,156
Unit 2	2,917	3,238	3,266	3,340	3,016	2,808	3,090	2,878	3,243	3,288	2,849	2,985
Unit 3	1,895	2,077	1,942	1,814	1,698	1,703	1,970	1,894	2,090	2,024	1,522	
Unit 4	2,739	3,084	3,050	3,044	3,039	3,003	3,357	3,000	3,040	3,414	2,920	3,010
Unit 5	1,985	1,861	2,077	1,997	1,988	1,961	2,109	1,882	2,151	2,063	1,814	1,847
Unit 6	1,379	1,319	1,462	1,402	1,188	1,146	1,355	1,142	1,122	1,438	1,191	1,066
Unit 7	1,173	1,129	1,215	1,177	1,175	963	1,239	1,074	1,167	1,213	1,197	1,152
Unit 8	2,632	2,982	2,994	3,098	3,169	2,756	3,178	2,909	2,978	3,196	2,784	2,506
Unit 9	1,556	1,817	1,787	2,002	1,734	1,990	2,180	2,141	2,210	2,205	2,104	1,905
Unit 10	2,649	2,745	2,779	2,923	2,970	2,851	2,886	2,430	2,629	2,711	2,351	2,438
Unit 11	2,170	2,157	2,304	2,219	2,256	2,133	2,159	2,011	1,919	2,205	1,922	2,009

ILLUSTRATIVE DASHBOARD – AFTER DATA ARCHITECTURE IMPLEMENTATION

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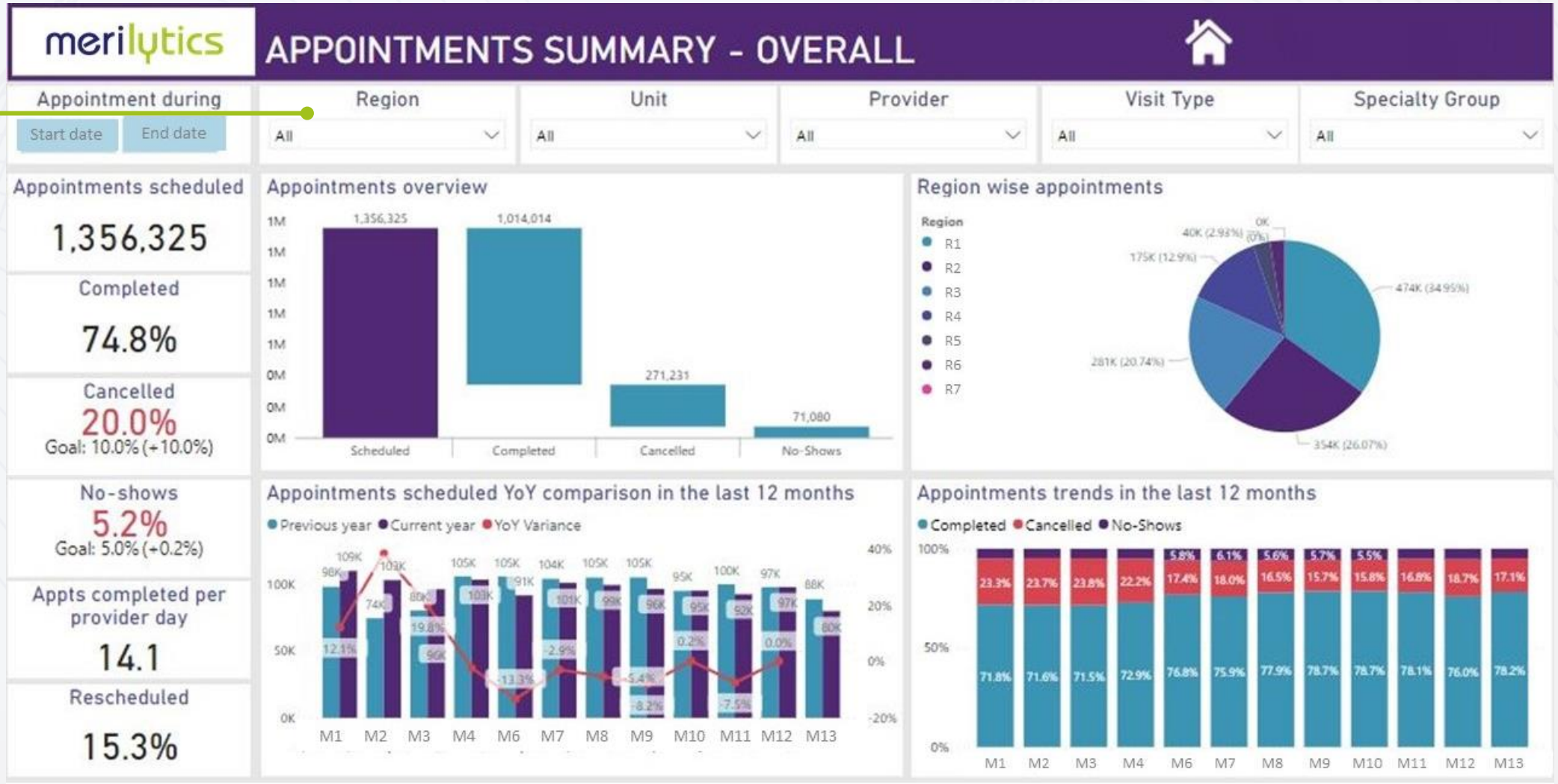
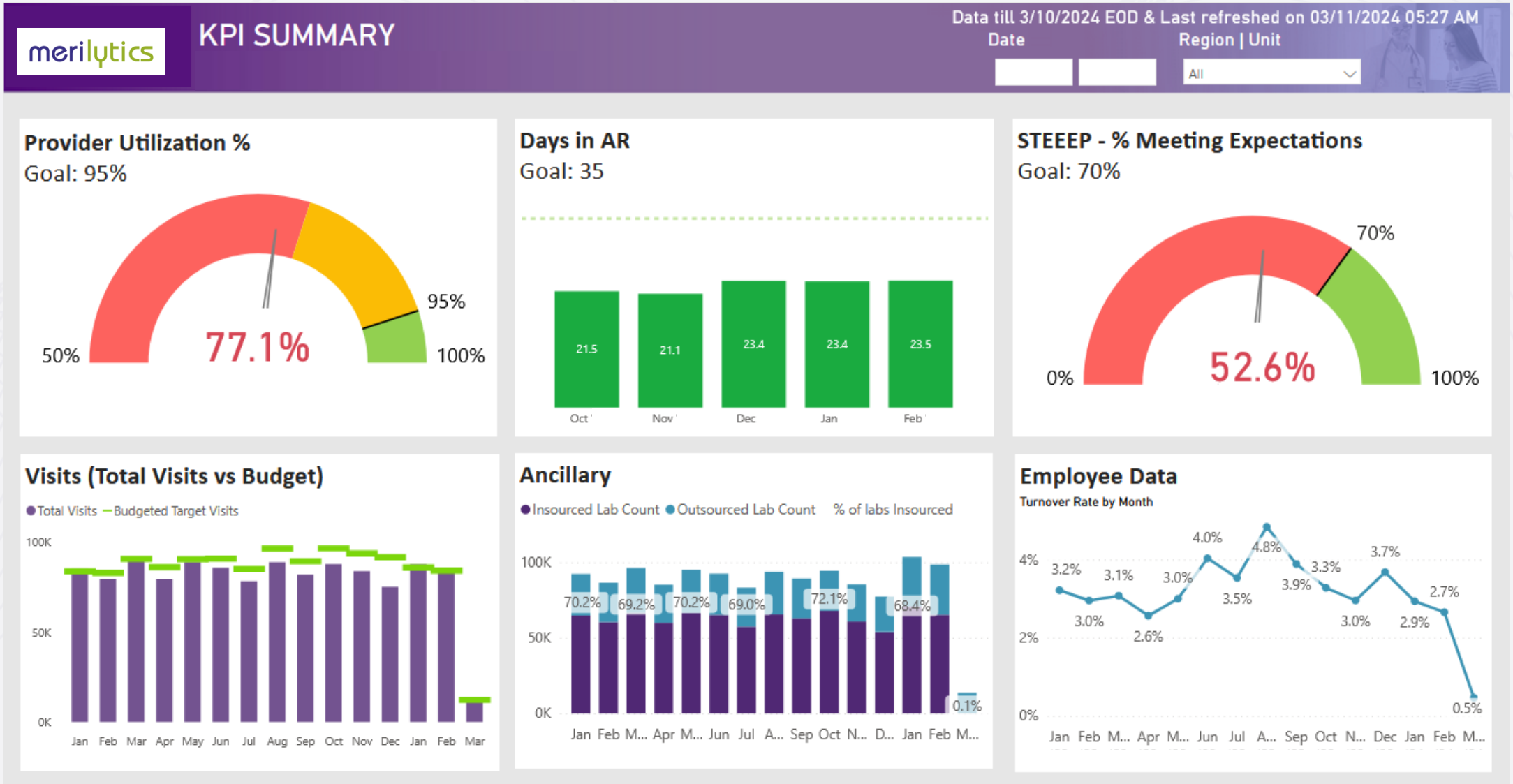
ILLUSTRATIVE

Single dashboard for all Regions with other data slicers



ILLUSTRATIVE DASHBOARD – AFTER DATA ARCHITECTURE IMPLEMENTATION

ILLUSTRATIVE



ILLUSTRATIVE DASHBOARD – AFTER DATA ARCHITECTURE IMPLEMENTATION

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ILLUSTRATIVE

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STEEEP - DEPARTMENT DRIVER

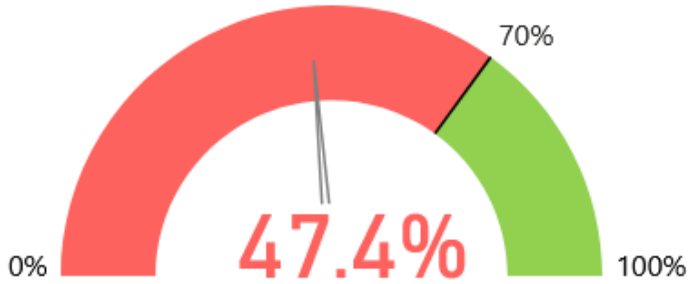
Data till 3/3/2024 EOD & Last refreshed on 03/04/2024 07:47 AM

Period: 2024

Region | Unit: Multiple selections

STEEEP - % Meeting Expectations

Goal: 70%



STEEEP Metrics Summary

	Quarter	2024 Quarter 1	
Type	Category	Goal	Score
Safe	Maternal Mortality	0.3 %	0.00 %
	NICU Admissions	16 %	0.9 %
	Post-op or Post-Partum DVT or PE	0.3 %	0.00 %
	Preterm Birth Rate	6.7 %	7.1 %
	Surgical Site Infection	0.5 %	0.00 %
Timely	% of Post-Partum Visits in 42 days	50 %	31.5 %
	% of Prenatal Visits in first trimester	75 %	72.5 %
	Median #-Days to Gyn. Appt.	7 days	4.0
	TAT for Pap smear performed within 5 days	90 %	88 %
Effective	Chlamydia Screening Rate	72 %	57.9 %
	Mammography Screening Rate	81.1 %	87.8 %
	NTSV C/S rate	23.9 %	19.1 %
	Total C/S Rate	35 %	33.7 %
	TSV Rate	23.9 %	29.5 %
	VBAC Rate	18.3 %	6.9 %
Efficient	LARC-Contraceptive Management	7.1 %	4.1 %
	Site of Service - In Office Procedures	50 %	80.5 %

Safe
NICU Admissions
Goal: 16 %
0.9 %

Timely
% of Post-Partum Visits in 42 Days
Goal: 50 %
31.5 %

Effective
NTSV C/S Rate
Goal: 23.9 %
19.1 %

Efficient
LARC-Contraceptive Management
Goal: 7.1 %
4.1 %

Equitable
Extended Hours Target
Goal: 60 %
1.7 %

Patient Centered
% Appts. Scheduled Online
Goal: 35 %
2.9 %

Notes: 1. The goal values for KPI cards, gauges and color formatting are based on the most recent year selected in the period slicer.