



# BI Infrastructure Implementation

## Medical Equipment Company

- Tracked monthly revenues generated and identified account receivable trends through automated dashboards on Tableau
- Built Billing Denial dashboard on Tableau to track Denials % by billing period and by various dimensions such as business regions, payors, and branches
- Built multiple automated Quality Check dashboards to ensure accuracy of data

# BI reporting and quality management for a medical equipment company

## Situation

- Client was expanding inorganically by acquiring companies and by scaling up the operations. To provide visibility through this phase, it required support to augment the BI Reporting/Analytics capabilities for various functions such as RCM, Accounting, Operations, etc.
- Partnered with the client to design and build the BI Reporting Suite on Tableau, for RCM, Accounting, and Operations, and developed automated critical Tableau dashboards. Also, we provided data & quality management services to ensure high accuracy of data.

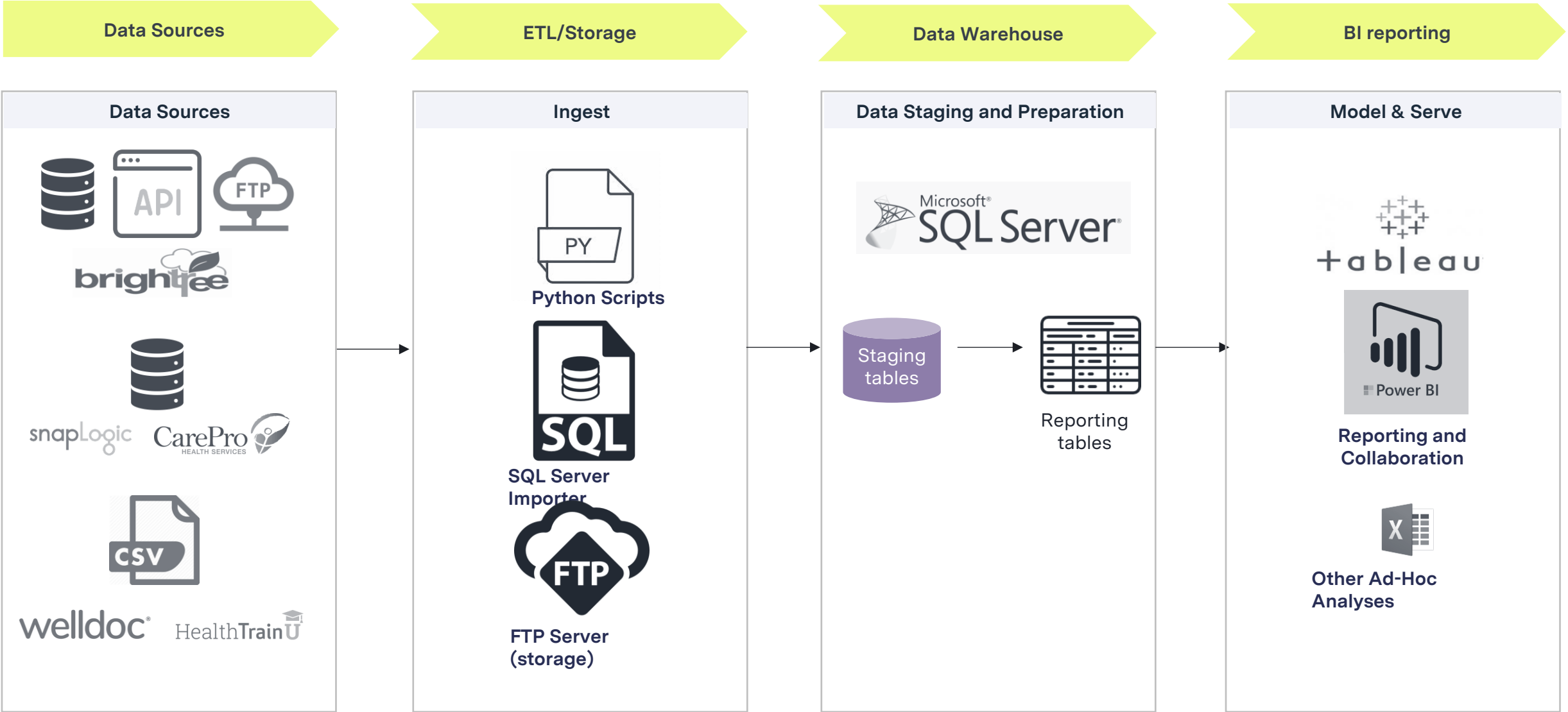
## Accordion Value Add

- Consolidated data across 20 business units using custom-built SSIS models and built automated self-service financial dashboards on Tableau to track Accounts Receivable (by age, region, entity etc.) and monthly revenues by product categories and regions
- Developed automated Billing Denial report by consolidating Invoice and Payments data from various business units to show denials % across businesses and identified Top-10 denial reasons
- Developed multiple automated Tableau Dashboards to monitor SQL jobs refresh time, Tableau Data Source Extracts refresh consistency and accuracy of data shown in production dashboards

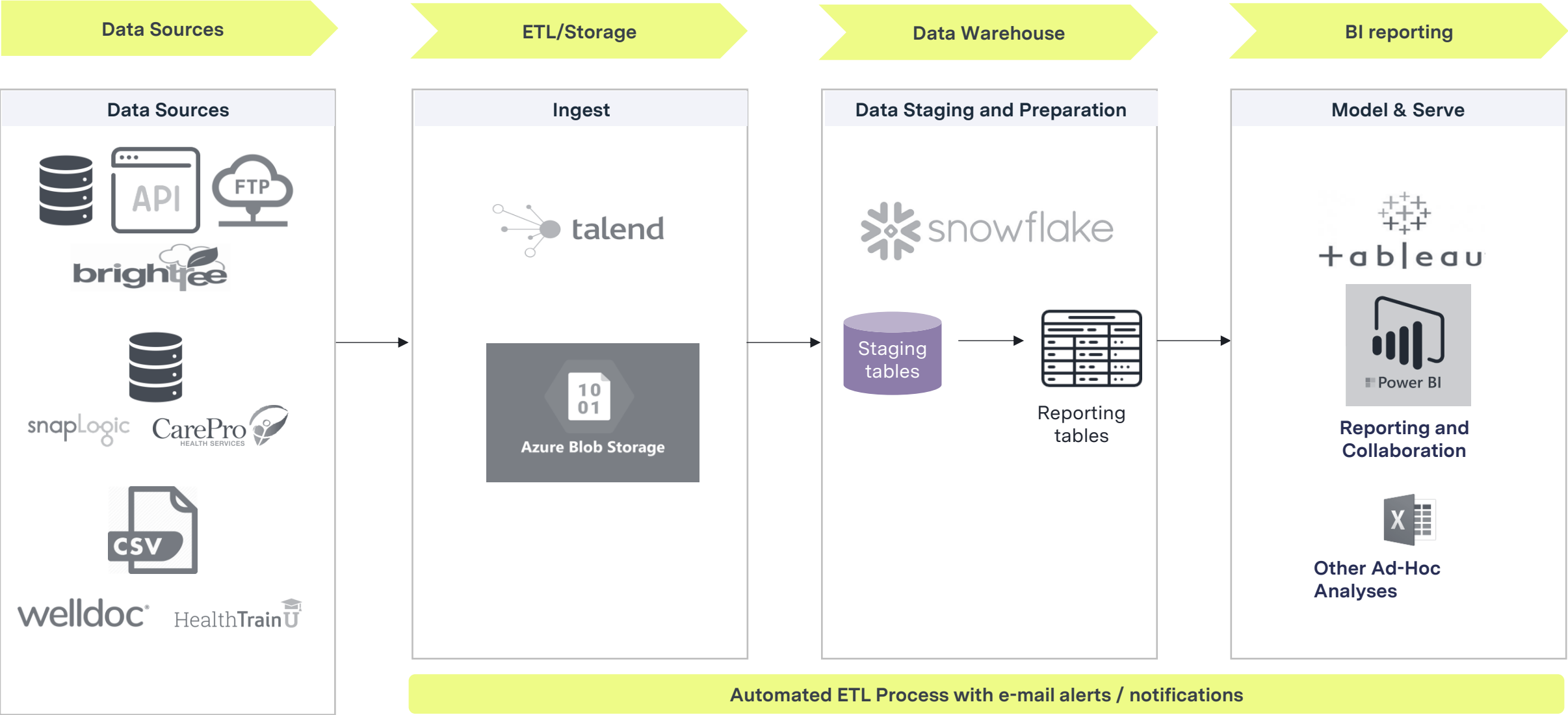
## Impact

- AR Aging report enabled better tracking of balance amounts over time, and identify high risk patients/insurance
- Billing Denial Dashboard helped identify regions and payors with high Denial rates and address the denial reasons. This also helped extract a worklist for open denials and share with respective clearing houses for further processing.
- SQL Status Summary Dashboard and Critical Dashboard Summary Dashboards helped in proactively identifying and debugging the failures in the SQL server or in Tableau environment. These automated dashboards reduced manual effort to monitor the production environments and keep the dashboards stable.

# BI infrastructure (old – on prem DW)



# BI infrastructure (new – transitioned from traditional DW to cloud)



FP&A reporting

Accounts Receivable by age and payer type  
Helps identify AR Aging for different types of Payers including Patients and Insurance agencies

Account Receivable Trends

EOM Date

Region

Region1

Nick Name

(All)

Last GL month available:

AR Balance as of:

AR Aging data

Payer	Current	31-60 Days	61-90 Days	91-120 Days	121-150 Days	151-180 Days	181-360 Days	>360 Days	Grand Total
Non-Patient Pay	\$9,096,626	\$1,710,674	\$1,262,156	\$1,038,480	\$1,009,295	\$747,660	\$2,308,623	\$362,018	\$17,535,533
Patient Pay	\$2,198,231	\$1,396,885	\$866,005	\$602,497	\$599,193	\$488,841	\$2,296,760	\$2,278,306	\$10,726,718
Patient Pay - Asset Recovery	\$65,873	\$136,795	\$110,160	\$165,396	\$89,602	\$72,555	\$521,612	\$570,067	\$1,732,060
Grand Total	\$11,360,730	\$3,244,354	\$2,238,321	\$1,806,373	\$1,698,090	\$1,309,056	\$5,126,995	\$3,210,392	\$29,994,311

Accounts Receivable by Patient regions  
Helps identify the AR Aging for different Patient regions

Explore / Production / FP&A / AR Aging Trends - Finance / AR Aging Trends by PT Region									
Search for views, metrics, workbooks, and more									
Cover Page AR Aging Trends AR Aging Trends by PT Region AR Aging Trends by SO Region AR Aging Trends by Payer AR Trends by GL - Nickname AR Aging Trends by P...									
Account Receivable Trends by PT Region									
AR Aging Month	Patient Entity Group	Patient Branch	Nick Name	Branch Name	PT Region	Invoice Status	Service Date	Mix Days	
April 2022	(All)	NorthShore Clinic	(All)	NorthShore Clinic	(Multiple values)	(All)	(All)	(All)	
Payor - Region AR Summary (last update: 5/13/ 1:11:49 AM)									
PT Region	Payer Type	0-30 Days	31-60 Days	61-90 Days	91-120 Days	121-150 Days	151-180 Days	Over 360 Days	Grand Total
AA Medical	Medicare/Medicaid	324,177.67	43,619.55	33,232.24	19,061.29	8,513.16	3,733.57	19,999.04	453,328.70
	Commercial	478,603.16	171,562.23	105,136.72	68,542.62	75,981.12	64,306.37	200,828.13	1,188,908.78
	Patient	128,066.95	64,520.82	50,058.33	39,531.71	40,749.15	25,178.84	14,675.83	573,245.55
	Asset Recovery	13,520.43	24,907.97	17,892.82	1,530.28	34,259.15	52,323.63	66,278.54	214,652.84
Absolute Respiratory Care	Medicare/Medicaid	73,523.47	10,038.34	9,452.33	8,722.71	7,188.52	6,476.51	12,847.31	129,280.55
	Commercial	359,084.54	97,677.40	90,794.44	70,285.69	85,746.43	43,417.76	146,117.48	896,398.58
	Patient	62,726.02	44,860.55	23,156.89	20,013.63	18,995.23	10,277.91	26,910.78	210,466.01
	Asset Recovery	236.35	3,446.90	1,820.00	1,600.00				7,103.25
ActivStyle	Medicare/Medicaid	1,038,408.41	171,007.13	101,069.29	99,576.49	126,892.57	89,002.64	225,215.67	2,027,086.89
	Commercial	1,826,975.85	536,829.05	435,071.53	396,628.56	289,884.35	230,749.38	732,056.14	5,190,077.03
	Patient	11,738.68	10,866.38	750.02	1,033.91	9,442.85	3,927.18	17,458.09	114,166.37
	Asset Recovery	42,225.99	9,285.83	11,218.86	8,426.74	8,669.42	9,081.40	53,707.36	118,114.71
Advanced Home Care	Medicare/Medicaid	99,175.25	41,309.31	37,369.01	33,154.51	28,249.08	23,699.89	193,423.77	539,466.25
	Commercial	35,183.17	25,667.03	26,926.07	24,989.44	21,839.77	23,135.77	378,566.03	596,892.40
	Patient	4,790.00	2,695.00	5,809.18	5,940.00	9,321.35	36,060.00	168,643.00	278,995.85
	Asset Recovery	969,066.70	184,547.60	136,492.77	84,180.44	40,778.42	40,978.14	130,312.32	1,564,922.91
Advanced Medical	Medicare/Medicaid	2,071,542.72	685,496.60	507,747.30	325,812.80	296,629.13	200,916.30	890,322.32	5,221,625.86
	Commercial	449,129.43	284,537.50	225,013.31	175,962.71	141,181.97	121,092.32	888,891.66	2,360,891.28
	Patient	63,458.83	111,577.90	50,271.02	22,478.10	148,602.87	185,948.05	259,321.24	859,141.01
	Asset Recovery	1,717.03	106.37	651.06	1,477.55	1,309.73	965.54	4,322.88	9,806.41
AeroCare	Medicare/Medicaid	2,830.02	1,074.92	963.98	9,440.97	13,009.21	6,387.69	28,564.57	71,384.95
	Commercial								

# RCM reporting (1/2)

← Explore / Production / RCM / Billing Denial Report / Denials by Payor Name ☆

← Undo → Redo ↶ Revert 🔄 Refresh ⏸ Pause

📊 View: Original ✉ Subscribe ✎ Edit 🔗 Share 📄 Download 💬 Comments 🖨

Denial Amounts By Payor Name

- This view shows the Denial Allow Amount, Billed Allow Amount and Ratio of the Denial Allow Amount to Billed Allow Amount.

- Data source for this view is 'BillingDenials\_Final\_2Months (Merilytics)'.

- Report contains data for GL Period > Jan

- Please refer to the information icon present at the top for the calculations.

Nick Name

GL Month

GL Quarter

PT Ops Region

PT Ops SubReg...

PT BranchGroup

PT BranchName

SO BranchGroup

SO Branch Name

Initial vs Recur...

Denial Type

Payor Group

Payor Name

Insurance Type

Insurance Group

HCPC Category

Denial Class

Denial Modifiers

Denial Name

Billing Period

SO Classificati...

Work Group

Denial Amounts By Payor Name

Last Updated : 5/8

5:43:17 PM

Payor Name	Denial Allow Amount	Grand Total		Denial %	May		
		Billed Allow Amount			Denial Allow Amount	Billed Allow Amount	Denial %
Grand Total	\$418,714,277	\$3,632,058,348		11.53%	\$2,956,537	\$32,419,241	9.12%
PATIENT PAY- CARECENTRIX	\$4,671	\$0					
HARDSHIP	\$1,353	\$277,088		0.49%	\$0	\$2,981	0.00%
Globe Life of NY	\$1,074	\$0					
GEHA (Secondary)	\$1,389	\$475,275		0.29%	\$0	\$6,423	0.00%
TRICARE FOR LIFE/ WPS	\$662	(\$2,672)		-24.77%			

Billing Denial Dashboard shows overall Denial % for the client across business operation regions and payors

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# RCM reporting (2/2)

← Explore / Production / RCM / Billing Denial Report / Top N Denials by Denial Name ☆

Device LayoutsData Sources|Q📄?🔔

← Undo → Redo ↶ Revert 🔄 Refresh ⏸ Pause

📄 View: Original ✉ Subscribe ✎ Edit 🔗 Share ⬇ Download 💬 Comments

Top N Denial Amount By Denial Name

- This view shows the Denial Allow Amount and Ratio of the Denial Allow Amount for each Denial Name to the Total Denial Allow Amount.

- Data source for this view is 'BillingDenials\_Final\_2Months (Merilytics)'.

- Report contains data for GL Period > Jan

- Please refer to the information icon present at the top for the calculations.

Top N

Nick Name

GL Month

GL Quarter

PT Ops Region

PT Ops SubR...

PT BranchGro...

PT BranchNa...

SO BranchGr...

SO Branch Na...

Initial vs Rec...

Denial Type

1,000

(All)

(All)

(All)

(All)

(All)

(All)

(All)

(All)

(All)

(All)

(All)

Payor Group

Payor Name

HCPC Category

Insurance Type

Insurance Gr...

Denial Class

Denial Modifi...

Denial Name

Billing Period

SO Classifica...

Work Group

(All)

(All)

(All)

(All)

(All)

Include

Include

(All)

(All)

(All)

(All)

Note : Please click on the '+' symbol present on the Denial Name below to drill down the information to PayorName.

Top N Denial Amount By Denial Name

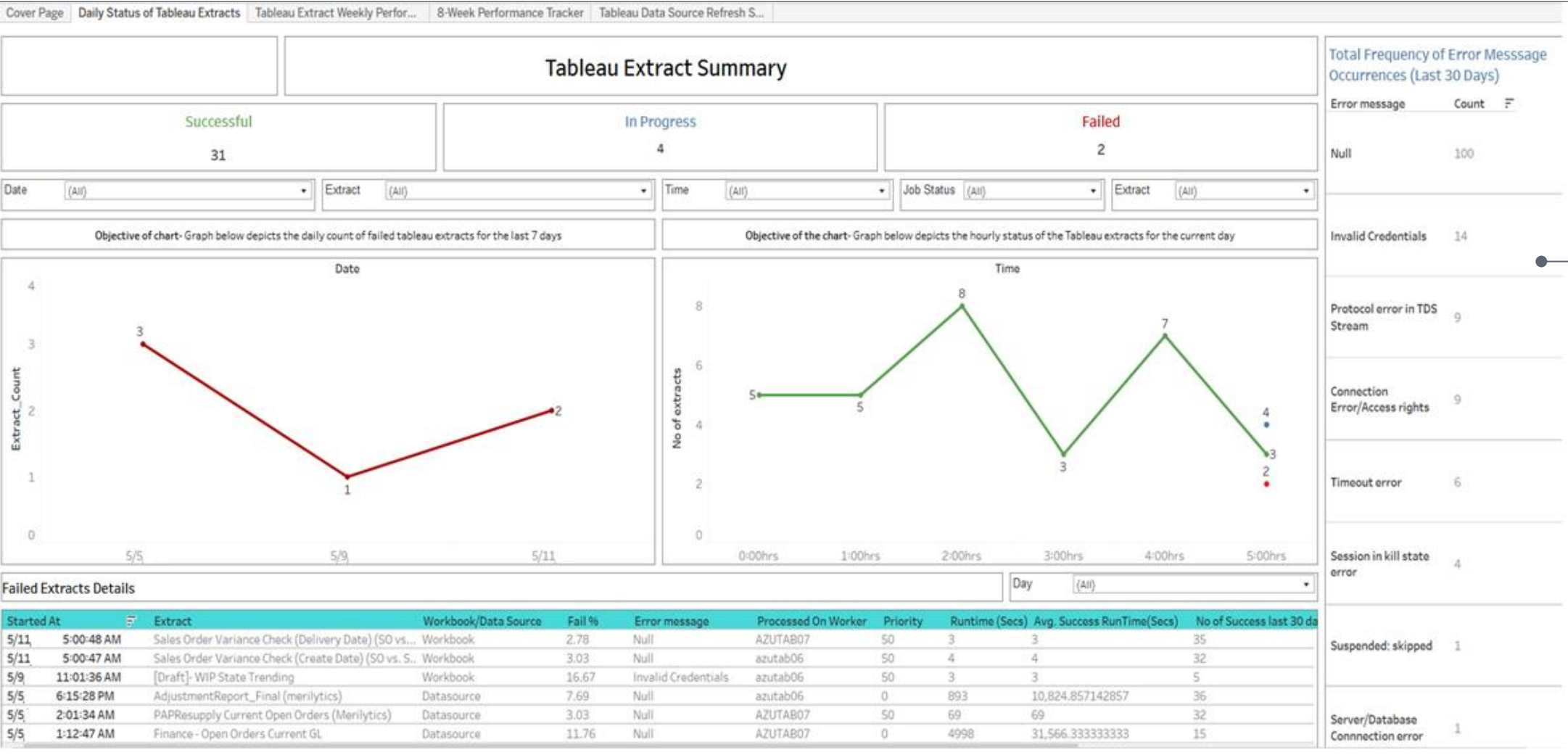
Last Updated : 5/15 9:39:33 AM

Denial Name	Grand Total		May		Apr		Denia A
	Denial Allow Amount	% of Total	Denial Allow Amount	% of Total	Denial Allow Amount	% of Total	
Grand Total	\$425,197,397	69.65%	\$9,408,514	1.54%	\$26,228,064	4.29%	\$29,8
Null	\$0	0.00%	\$0	0.00%	\$0	0.00%	
0 Claim NOT on File - RESUBMITTED	\$26	0.00%					
0-A4 HUMANA MISSING MODIFIER	\$13	0.00%					
0B - CLAIM RE-PROCESSED UNDER NEW CLAI...	\$0	0.00%					
1 - NOT COVERED	\$35	0.00%					
1-Charges do not appear to be medically nec...		0.00%					
1-Deductible Amount	\$125,801	0.05%	\$1,970	0.00%	\$15,616	0.01%	\$:

Billing Denial Dashboard helps the client to identify top denial reasons by denial % for different business units and payors



# Data management & quality reporting



Failed Extracts Details

Day (All)

Started At	Extract	Workbook/Data Source	Fail %	Error message	Processed On Worker	Priority	Runtime (Secs)	Avg. Success Runtime(Secs)	No of Success last 30 da
5/11 5:00:48 AM	Sales Order Variance Check (Delivery Date) (SO vs...	Workbook	2.78	Null	AZUTAB07	50	3	3	35
5/11 5:00:47 AM	Sales Order Variance Check (Create Date) (SO vs. S...	Workbook	3.03	Null	azutab06	50	4	4	32
5/9 11:01:36 AM	[Draft]- WIP State Trending	Workbook	16.67	Invalid Credentials	azutab06	50	3	3	5
5/5 6:15:28 PM	AdjustmentReport_Final (Merilytics)	Datasource	7.69	Null	azutab06	0	893	10,824.857142857	36
5/5 2:01:34 AM	PAPResupply Current Open Orders (Merilytics)	Datasource	3.03	Null	AZUTAB07	50	69	69	32
5/5 1:12:47 AM	Finance - Open Orders Current GL	Datasource	11.76	Null	AZUTAB07	0	4998	31,566.333333333	15

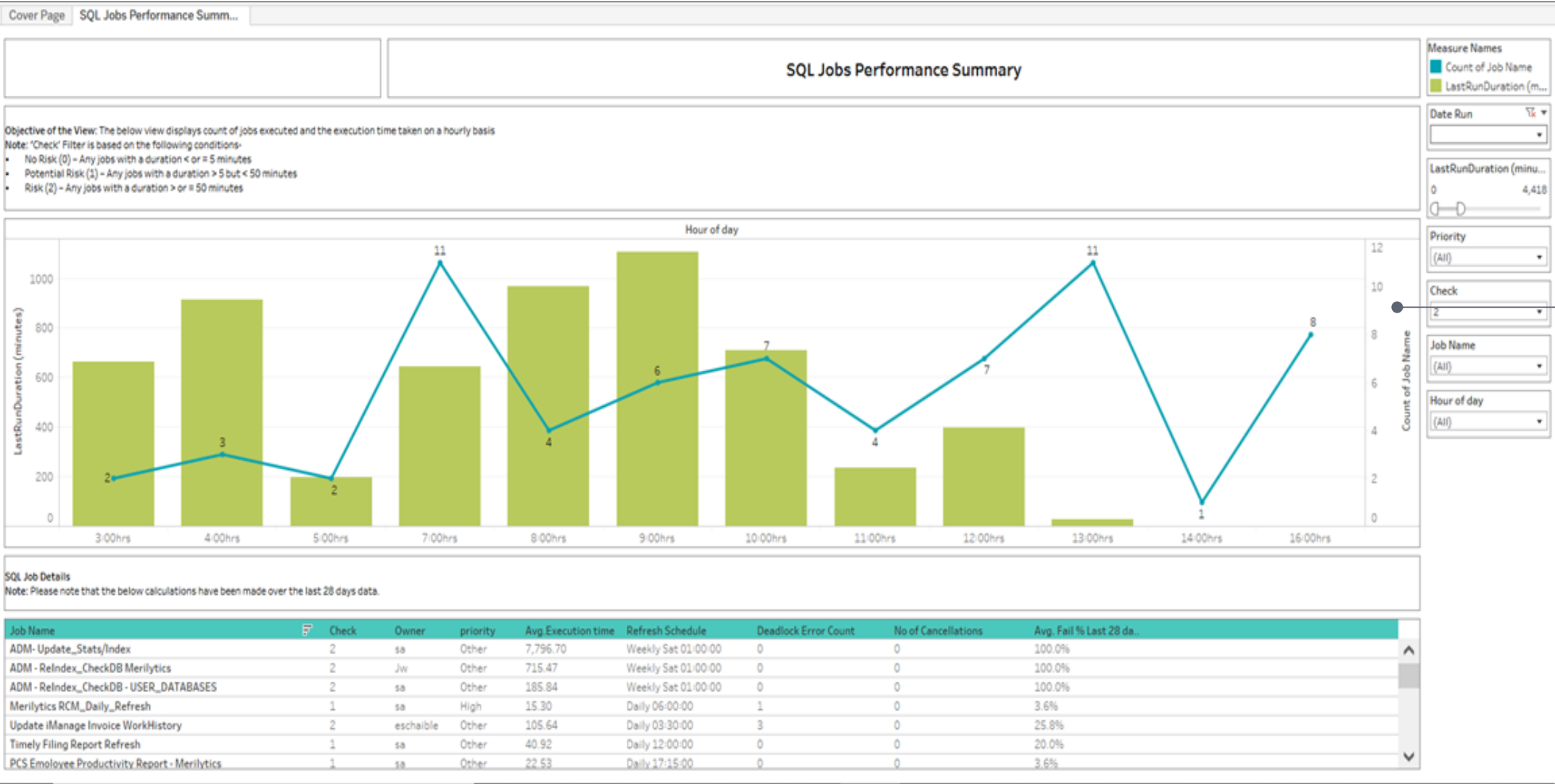
Total Frequency of Error Message Occurrences (Last 30 Days)

Error message	Count
Null	100
Invalid Credentials	14
Protocol error in TDS Stream	9
Connection Error/Access rights	9
Timeout error	6
Session in kill state error	4
Suspended: skipped	1
Server/Database Connection error	1

This dashboard gives overview on overall health of the Tableau infrastructure of the client. It also identifies long running tableau extracts and any high priority failures



# Data & quality management reporting



The dashboard shows the overall health of SQL server of the client. It identifies long running SQL jobs and proactively helps to identify and fix the critical failures in any given day