



Airrosti MSK Cost Savings Study

Optum Advisory

December 10th, 2025

Session objectives

- Review and discuss findings from the Optum & Airrosti Clinical and Cost Outcomes study
- Explore strategic implications and next steps for Airrosti

Agenda

1

Executive Summary

2

Propensity Score Matching Analysis

3

Conclusions and Strategic Next Steps

Executive summary – Airrosti & Optum Clinical and Cost Outcomes Study

Airrosti asked Optum to support proving their financial value to payers and improve operational efficiency

Airrosti and Optum **co-developed analyses to prove Airrosti's value** for negotiations with payers

Optum found promising **MSK savings** associated with Airrosti intervention

Optum can support positioning of **Airrosti as a critical lever** for payers to **manage affordability of MSK members**

To support development of the study, Optum...

- 1 Conducted Clinical Interviews** with Airrosti to develop hypotheses to be tested out in analysis
- 2 Engaged in ongoing discussions** with Airrosti to finalize the study design



Matching Analysis to demonstrate the value of Airrosti services through comparison of outcomes of Airrosti and non-Airrosti providers

- In total and on a cost category basis

\$3,607 PMPY Savings
Identified highest area of savings in **outpatient**

Airrosti can leverage study findings to negotiate:

- 1 Improved rates**
- 2 Inclusion in preferred networks and enhanced payer driven steerage**
- 3 Enhancing / activating alternate channels for growth**

Optum completed against the scope of work

Clinical Hypotheses

- OA conducted interviews with Airrosti leaders to inform hypotheses to test within the following analyses
- OA and Airrosti aligned on episode definitions and key metrics to be measured by OA to validate hypotheses



Propensity Score Match Analysis

- OA performed a propensity score matching analysis to quantify the impact of Airrosti interventions
- **Deliverable:** OA will deliver an Excel and PowerPoint summary of the services and outcomes (including metrics showing financial impact of clinical intervention and supporting drivers of change)

All Claims						
12 month Total Allowed	Members	Pre Period	Post Period	PMPM		Difference
Airosti (Study)	2,331	\$2,312	\$1,633	\$193	\$303	-\$1,301
Matched No						
Outpatient Detail						
Outpatient Surgery						
12 month Total Allowed	Members	Pre Period	Post Period	PMPM		Difference
Airosti (Study)	2,331	\$60	\$320	\$5	\$27	-\$260
Matched Non-Airosti (Control)	10,798	\$49	\$1,350	\$4	\$113	-\$1,301
Matched No						
Difference-in-Difference						(\$1,041)
p-value						0.0000
ASC						
12 month Total Allowed	Members	Pre Period	Post Period	PMPM		Difference
Airosti (Study)	2,331	\$117	\$231	\$10	\$19	-\$114
Matched Non-Airosti (Control)	10,798	\$94	\$666	\$8	\$57	-\$253
Matched No						
Difference-in-Difference						(\$479)
p-value						0.0000
ER						
12 month Total Allowed	Members	Pre Period	Post Period	PMPM		Difference
Airosti (Study)	2,331	\$152	\$355	\$13	\$30	-\$203
Matched Non-Airosti (Control)	10,798	\$161	\$556	\$13	\$46	-\$395
Matched No						
Difference-in-Difference						(\$193)
p-value						0.0000
PT						
12 month Total Allowed	Members	Pre Period	Post Period	PMPM		Difference
Airosti (Study)	2,331	\$1	\$40	\$0	\$3	-\$39
Matched Non-Airosti (Control)	10,798	\$4	\$227	\$0	\$19	-\$223
Matched No						
Difference-in-Difference						(\$185)
p-value						0.0000

Propensity Score Matching (PSM) Analysis

Airrosti intervention results in a total savings of \$3,607 per member per year



The total difference-in-difference PMPY indicates that average allowed PMPY from the pre-period to the post-period increased by \$3,607 more within the control population compared with the Airrosti population

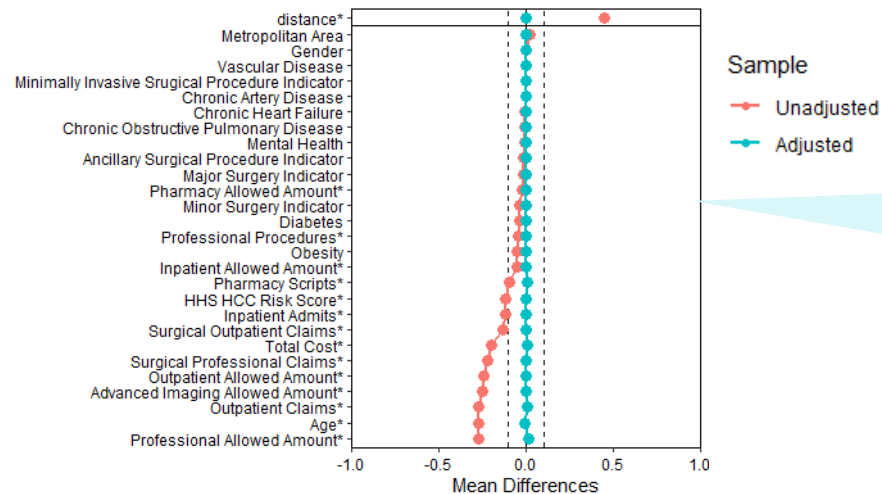
Airrosti and Optum co-developed study methodology:

- Utilized 12-month pre period and 12-month post period
- Exact match on gender, comorbidities¹, urban/rural indicator, obesity indicator, and surgery types²
- Caliper match on age (+/- 2 years)
- Caliper match on pre-period allowed +/- \$4,000
- Removed members not continuously enrolled or with missing data
- Allowed up to 5 matches in the control population per Airrosti patient

Covariate Balance

Airrosti matched: n = 2,890 (81%)

Control matched: n = 57,109



A negative mean difference for a covariate indicates that the mean of the covariate is lower in the Airrosti (study) group than the control group.

The covariate balance confirms improved comparability between Airrosti and control groups after matching (*blue line*), indicating observed savings are likely attributable to Airrosti

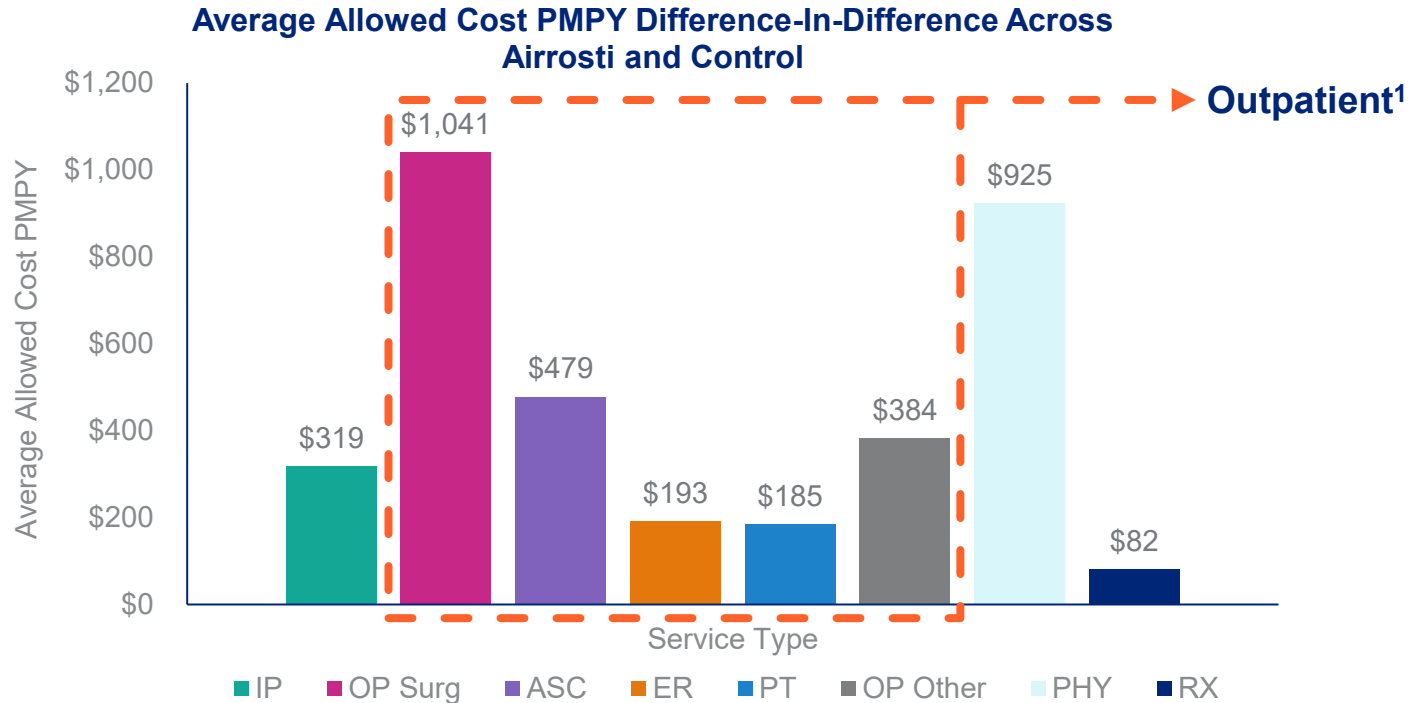
Average Allowed Cost PMPY^{4, 5}

12 months pre vs. 12 months post

Cohort	Member Count	“Pre” Period	“Post” Period	Difference
Airrosti (Study) ³	2,331	\$2,312	\$3,633	\$1,321
Matched Non-Airrosti (Control) ³	10,798	\$2,234	\$7,162	\$4,928
Difference-in-Difference				\$3,607
p-value				<0.0001

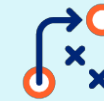
1. Includes chronic artery disease, chronic heart failure, chronic obstructive pulmonary disease, diabetes, and chronic mental health conditions.
2. Includes ancillary procedures, minimally invasive procedures, minor surgery, and major surgery.
3. Excludes members younger than 18 or older than 65 and members with certain conditions including cancer, crushing injuries, fractures, drug abuse, among others.
4. Experience period: 1/1/2021 - 12/31/2024
5. Index event period: 1/1/2022 - 12/31/2023

The highest buckets of total savings from Airrosti are OP Surgery and Professional



Key:

- IP: Inpatient
- OP Surg: Outpatient Surgery
- ASC: Ambulatory Surgical Centers
- ER: Emergency Room
- PT: Physical Therapy
- OP Other: Other Outpatient
- PHY: Professional²
- RX: Pharmacy

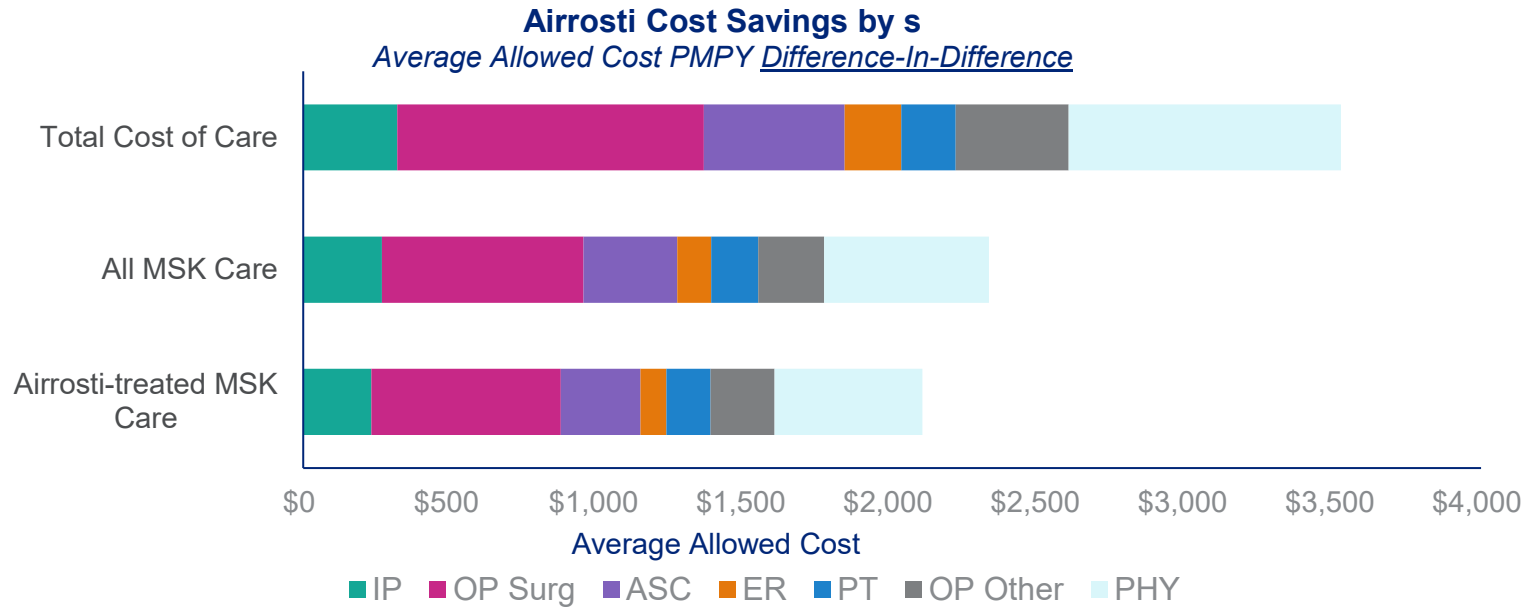


Airrosti's intervention improves patient outcomes and reduces reliance on high-cost interventions. PSM demonstrates that Airrosti patients have **lower IP, OP, and Professional spend** post service compared to other MSK providers.

When combined, **OP Surg, ASC, ER, and PT** equal average allowed cost of \$1,900, representing significant outpatient facility savings.

1. Outpatient (OP) charges refer to facility-based costs for services provided in an outpatient setting.
2. Professional charges represent the fees for individual healthcare providers' services, such as physicians and therapists.

Significant savings are obtained based on total care as well as in MSK care



The areas of greatest cost savings are **Outpatient** and **Professional**.

Cost savings are obtained in **Total Cost of Care**, as well as in **MSK-specific spend**.

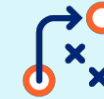
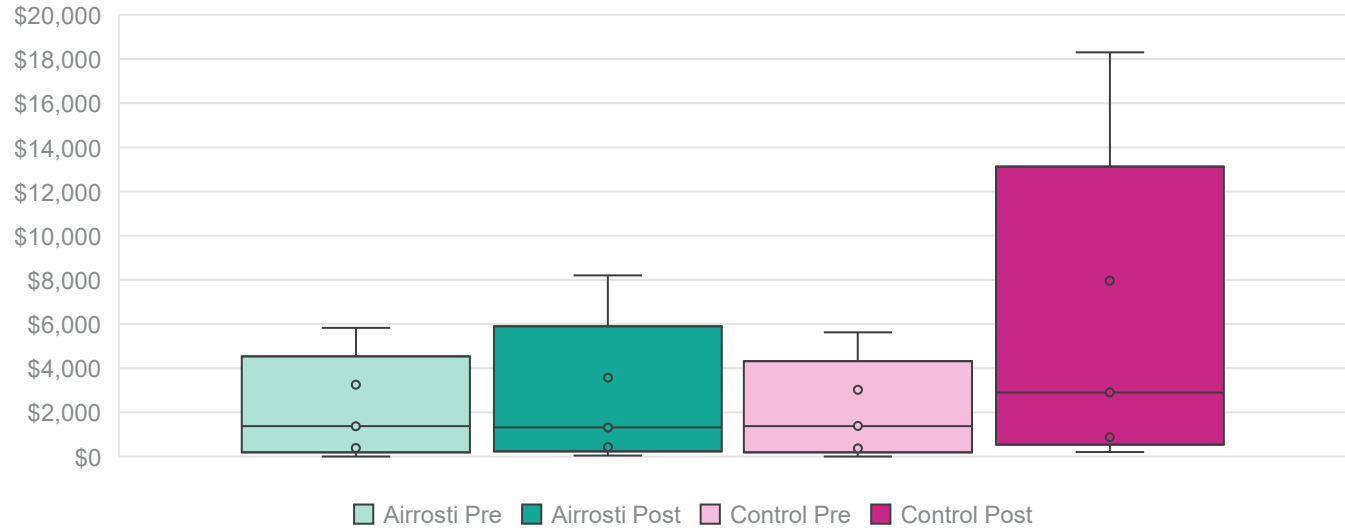
Significant cost savings are observed even when limiting the data using a conservative definition of MSK spend³.

Cost Definition	IP	OP Surgery	ASC	ER	PT	OP Other	PHY	Total
Total Cost ¹	\$319	\$1,041	\$479	\$193	\$185	\$384	\$925	\$3,526
All MSK Care ²	\$267	\$686	\$318	\$114	\$160	\$224	\$560	\$2,329
Airrosti-treated MSK Care ³	\$231	\$644	\$271	\$88	\$150	\$217	\$502	\$2,103

1. Includes all claims during the pre and post periods.
2. Includes all claims during the pre and post periods with an ICD-10 diagnosis code between M00 and M99.
3. Includes all claims during the pre and post periods with an ICD-10 diagnosis code between M00 and M99 listed in *ICD-10 Codes 2023 01 24.xlsx*.

“Post” Period Total Cost of Care is much lower for Airrosti members

Total Cost of Care Distribution by Population and Period



The Airrosti population demonstrates a significantly lower cost distribution in the post period compared to the control group, indicating strong financial impact.

The median cost for Airrosti is well below that of the control group post-intervention, with a narrower inter-quartile range, signaling reduced lower variability and more predictable costs.

These results reinforce the effectiveness of Airrosti interventions in driving cost reductions.

Total Cost of Care Percentiles by Population and Period

Percentile	Airrosti		Control Group	
	Pre	Post	Pre	Post
10 th	\$0	\$40	\$0	\$195
25 th	\$380	\$417	\$364	\$865
50 th	\$1,367	\$1,311	\$1,373	\$2,896
75 th	\$3,250	\$3,572	\$3,023	\$7,962
90 th	\$5,825	\$8,206	\$5,621	\$18,304



To everyone involved ...

It was a pleasure to work with you.

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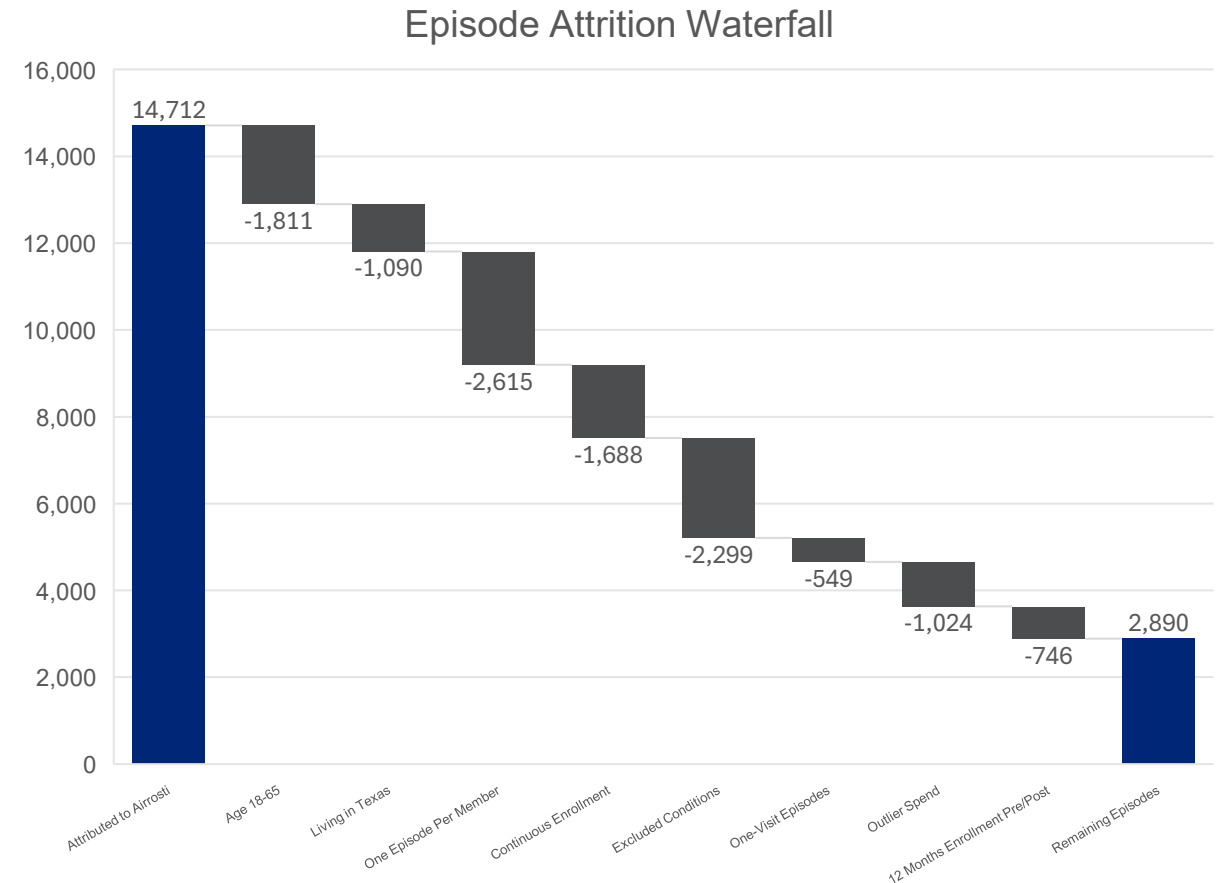
Appendix

Attrition Tables

Optum has 2,890 episodes across two years that were attributed to Airrosti.

- Optum has used the list of TINs and Group NPIs provided by Airrosti to identify Airrosti services.
- The attrition table and waterfall chart below show the impact of the episode definition criteria on the total number of episodes.

Episode Exclusion Criteria	Excluded	Remaining Episodes
Episodes Attributed to Airrosti		14,712
Age < 18 or Age > 65	1,811	12,901
Living in Texas	1,090	11,811
One Episode Per Member	2,615	9,196
Continuous Enrollment	1,688	7,508
Excluded conditions	2,299	5,209
One-visit episodes	549	4,660
Episodes with spend <\$100 or >\$75,000	1,024	3,636
Less than 12 months of enrollment in pre/post periods	746	2,890
Remaining Episodes		2,890



Baseline Continuous Variables Characteristics (Pre-Match)

- Optum performed statistical tests to determine whether there are significant differences in several variables between the treatment and control populations. The tests were also performed at the surgical vs non-surgical level.
- There are notable imbalances in the following covariates: **age, risk score, professional surgical procedures, advanced imaging utilization and spend, inpatient admits, outpatient claims, pharmacy scripts, and inpatient, outpatient, and professional allowed amounts.**

	Surgical				Non-Surgical				Surgical P-Value	Non-Surgical P-Value	Surgical Std Mean Diff	Non-Surgical Std Mean Diff
	Treatment		Control		Treatment		Control					
	Mean	Std	Mean	Std	Mean	Std	Mean	Std				
Age	46.8	11.1	50.4	10.7	42.2	11.2	44.9	12.2	0.0013	<.0001	0.3357	0.2346
HHS-HCC Risk Score	0.739	1.369	1.318	4.082	0.502	1.789	0.658	2.239	0.0001	<.0001	0.1904	0.0767
Surgical Utilization												
Inpatient Surgical Admits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3174	NA	0.0203	NA
Outpatient Surgical Claims	0.5	1.0	0.5	1.0	0.0	0.0	0.0	0.0	0.7652	NA	0.0300	NA
Professional Surgical Procedures	2.8	4.4	3.7	7.0	0.0	0.0	0.0	0.0	0.0633	NA	0.1440	NA
Advanced Imaging												
Advanced Imaging Allowed Amount	\$514	\$1,280	\$726	\$1,521	\$94	\$483	\$200	\$865	0.1022	<.0001	0.1508	0.1520
Advanced Imaging Units	0.8	1.4	1.0	1.7	0.2	0.6	0.3	0.9	0.1496	<.0001	0.1323	0.1723
Utilization												
Inpatient Admits	0.0	0.2	0.1	0.3	0.0	0.1	0.0	0.2	0.0607	<.0001	0.1382	0.0722
Outpatient Claims	2.8	4.9	3.4	5.2	0.7	1.7	1.1	2.6	0.2733	<.0001	0.1063	0.1812
Professional Procedures	166.4	162.0	439.8	2,271.4	95.5	847.2	105.5	753.6	<.0001	0.5423	0.1698	0.0125
Pharmacy Scripts	10.0	18.3	14.1	25.9	6.9	14.3	7.8	17.1	0.0293	0.0006	0.1821	0.0612
Cost of Care												
Inpatient Allowed Amount	\$2,627	\$18,416	\$3,518	\$21,364	\$411	\$6,404	\$633	\$7,493	0.631	0.077	0.0447	0.0319
<i>Cost Per Inpatient Admit</i>	\$66,984	NA	\$45,737	NA	\$31,802	NA	\$25,430	NA	NA	NA	NA	NA
Outpatient Allowed Amount	\$5,478	\$11,880	\$8,121	\$15,348	\$1,081	\$3,952	\$1,788	\$6,854	0.0293	<.0001	0.1926	0.1262
Professional Allowed Amount	\$6,667	\$6,150	\$10,067	\$16,280	\$2,382	\$4,043	\$3,102	\$8,237	<.0001	<.0001	0.2763	0.1110
Pharmacy Allowed Amount	\$1,021	\$3,936	\$2,314	\$13,123	\$1,228	\$7,794	\$1,313	\$7,734	0.0033	0.5713	0.1335	0.0110
Total Allowed Amount	\$15,793	\$25,825	\$24,020	\$38,996	\$5,102	\$13,460	\$6,836	\$17,515	0.0021	<.0001	0.2488	0.1110

Baseline Discrete Variables Characteristics (Pre-Match)

- Optum performed statistical tests to determine whether there are significant differences in several variables between the treatment and control populations. The tests were also performed at the surgical vs non-surgical level.
- There are notable imbalances between the treatment and control cohorts in the following covariates: **geographic region, presence of obesity, presence of diabetes, minimally invasive procedures, and minor surgery.**

	Surgical		Control		Non-Surgical		Control		Surgical	Non-Surgical	Surgical	Non-Surgical
	Treatment				Treatment				P-Value	P-Value	Std Mean Diff	Std Mean Diff
	N	%	N	%	N	%	N	%				
Valid N	102	100%	4,876	100%	2,788	100%	52,233	100%				
Demographics												
Metropolitan	100	98%	4,413	91%	2,615	94%	47,937	92%	0.010	0.000	0.329	0.078
Male	50	49%	2,132	44%	1,331	48%	25,100	48%	0.286	0.747	0.106	0.006
Obesity	16	16%	1,147	24%	260	9%	7,332	14%	0.064	<.0001	0.198	0.147
Comorbidities												
Acute Myocardial Infarction	0	0%	23	0%	2	0%	90	0%	0.487	0.205	0.097	0.029
Chronic Artery Disease	0	0%	40	1%	5	0%	154	0%	0.358	0.268	0.129	0.024
Chronic Heart Failure	0	0%	59	1%	6	0%	307	1%	0.264	0.011	0.157	0.059
Chronic Obstructive Pulmonary Disease	1	1%	67	1%	2	0%	273	1%	0.735	0.001	0.037	0.083
Diabetes	7	7%	645	13%	95	3%	3,503	7%	0.059	<.0001	0.213	0.151
Mental Health	1	1%	141	3%	26	1%	757	1%	0.251	0.025	0.139	0.048
Vascular Disease	0	0%	7	0%	1	0%	28	0%	0.702	0.691	0.054	0.008
Types of Surgery												
Ancillary Procedures	29	28%	1,253	26%	0	0%	0	0%	0.532	NA	0.062	NA
Minimally Invasive Procedures	5	5%	124	3%	0	0%	0	0%	0.138	NA	0.125	NA
Minor Surgery	61	60%	3,217	66%	0	0%	0	0%	0.193	NA	0.128	NA
Major Surgery	24	24%	1,248	26%	0	0%	0	0%	0.636	NA	0.048	NA

Matching

- Optum performed propensity score matching on the surgical and non-surgical episodes separately.
- There are only 102 Airrosti surgical episodes, which significantly limits the number of possible matches.
- Due to the limited number of matches in the surgical cohort, the surgical and non-surgical episodes were combined into a single dataset, and propensity score matching was performed on the combined dataset.
- Out of the 2,890 Airrosti episodes in the combined dataset, **2,331 episodes were successfully matched** with Non-Airrosti episodes.
- The number of matched episodes represents a match rate of **81%**. Match rates of 70-90% are often considered a strong match rate.

81%

match rate

Matching

- The chart to the right is a Covariate Balance plot, a tool used to assess how well the matching process has balanced the distribution of variables between the treatment (Airrosti) and control (Non-Airrosti) groups.
- The red dots represent the differences for each variable **before** the matching.
- The green dots represent the differences for each variable **after** the matching.
- Ideally, after matching, all variables should fall within the acceptable range represented by the dotted lines.
- The plot visually confirms that the matching achieved covariate balance, which will be crucial for unbiased treatment effect estimation.

