Analysis of Gambling Rehabilitation Data

Table of Contents

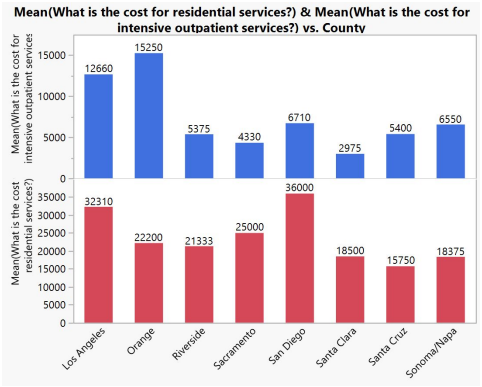
Summary statistics and regional variations

We were presented with cost data and clinical service attributes for intensive outpatient and residential services for 25 gambling rehabilitation centers across California. Our objective was to determine which of these clinical service attributes (e.g., credentials of staff, ancillary services) influence the overall cost of rehabilitation. Below are summary statistics for overall costs.

Residential Services Cost	
Mean	24258
Standard Error	2371
Median	20000
Mode	25000
Standard Deviation	10335
Sample Variance	106814518
Kurtosis	0
Skewness	1
Range	36450
Minimum	8550
Maximum	45000
Sum	460900
Count	19

Intensive Outpaitent Services Cost	
Mean	8305
Standard Error	1160
Median	7500
Mode	7500
Standard Deviation	5055
Sample Variance	25551949
Kurtosis	0
Skewness	1
Range	17340
Minimum	2160
Maximum	19500
Sum	157790
Count	19

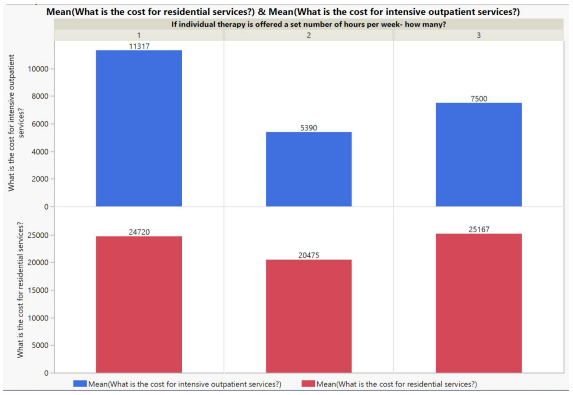
We also performed an analysis of variations in costs by county, as shown below. It is clear that in terms of residential services, large cities such as Los Angeles and San Diego are at a cost disadvantage, probably due to higher real estate costs. A similar trend is observed in Intensive Outpatient Services, with less dense population areas (e.g., Santa Clara, Sacramento, Riverside) offer lower cost gambling rehabilitation.



Insights

A-Level Insights

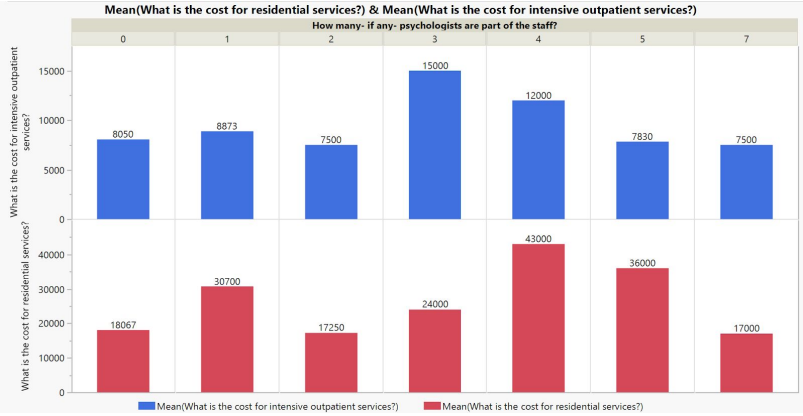
Number of individual therapy hours does not affect cost



It seems from the data that whether a center offers 1 or 3 hours of therapy is not linearly associated with the overall cost of administering the program. This was surprising, as you would expect that individual therapy hours would be billed and baked into overall program costs.

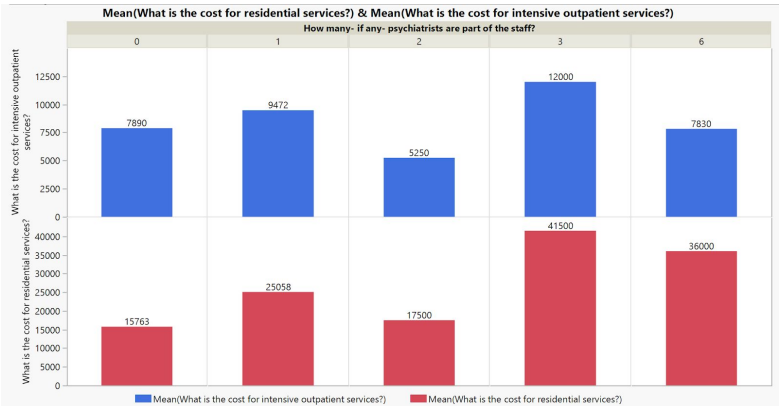
Number of psychologists on staff does not affect cost, but psychiatrists could have an effect for a residential program

We looked at the average cost of a residential and intensive outpatient service for centers with different numbers of psychologists. The graph below shows that the average monthly cost of a program with 0 psychologists is $8,050 for IOS, and $18,067 for residential service. Similarly, programs with 7 psychologists recorded an average monthly cost of $7,500 for IOS and $17,000 for residential services.



We look at a similar effect but analyzing the number of psychiatrists on staff. We see a similar trend from above in terms of intensive outpatient service being the same at 0 or 6 psychiatrists on staff ($7,890 and $7,830 respectively). This makes sense as IOS operations can better predict and match staffing to patient daily needs.

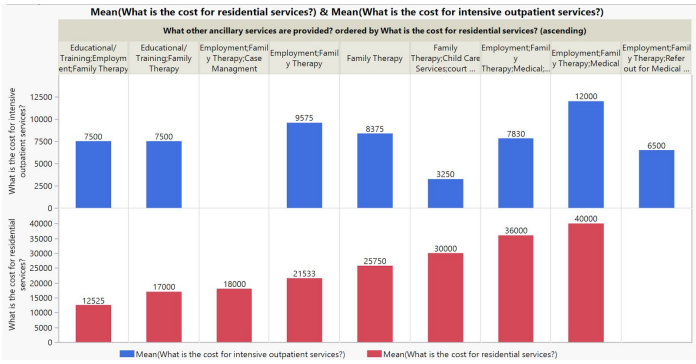
A different pattern emerges when looking at variances in the number of psychiatrists versus the residential services program monthly costs. It seems that the more psychiatrists you add, the more expensive the monthly cost gets. This could be because the overhead costs of specialized clinicians (psychiatrists) create a large impact.



B-Level Insights

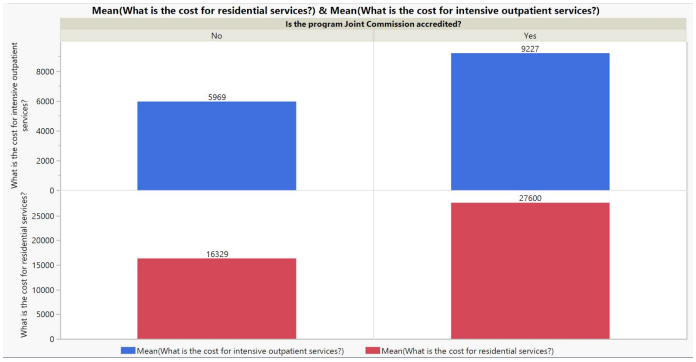
Quantity of ancillary services does not show a trend towards cost

Looking at the graph below, it seems that the number of ancillary services is not related to costs. For example, centers that offer only family therapy are more expensive than those that offer Family Therapy, Child Care Services, Yoga, and Equine Therapy.



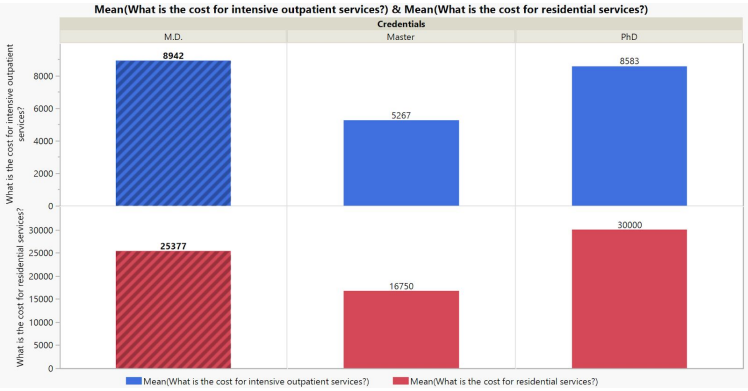
Joint Commission accreditation increases program costs

This is somewhat intuitive, whether it is because of branding or licensing costs, but accredited clinics charge a higher rate than those that are not accredited. This would be an amazing insight if there was no difference in outcomes between the two types of clinic.



Programs where staff have only master's level credentials are cheapest

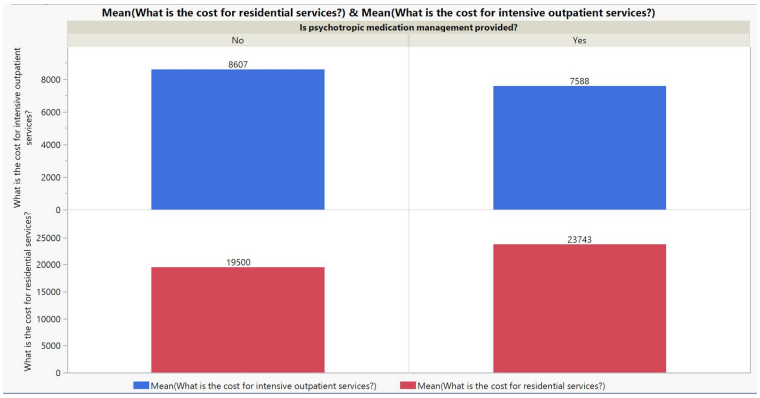
As we can see from the below comparison by credentials, having only master level staff could reduce both Intensive Outpatient Service and Residential Service costs by up to 40%. As with Joint Commission accreditation, we need to know the efficacy of having staff with higher credentials as it relates to patient outcomes before viewing this as impactful.



C-Level Insights

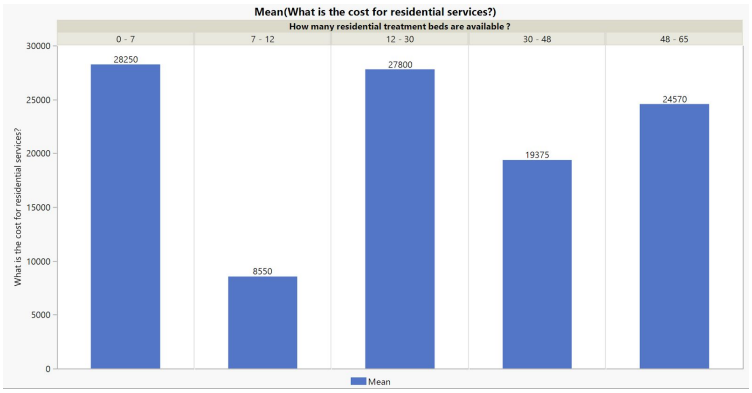
Psychotropic medication management has mixed effects on cost

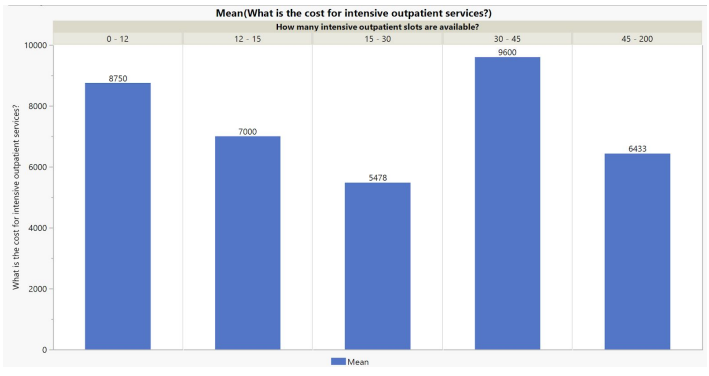
Providing psychotropic medication management tends to decrease the average costs of treatment in an intensive outpatient service setting. While we observe the reverse effect in residential service settings.



Program costs tend to decrease with scale

We look at the average cost of rehabilitation treatment by scale (residential treatment beds and and intensive outpatient slots are used as proxies for capacity). There appears to be some benefit to large-scale residential treatment centers, as those with 48-65 beds have an average cost of $24,750 versus $28,250 for centers with 7 or fewer beds. A similar trend is observed for Intensive Outpatient Services. This result makes sense as at a minimum purchasing costs can be reduced with larger quantity orders for medical supplies, equipment, and beds.





Recommendations

A-Level Recommendations

Optimize psychologist staffing and number of individual therapy hours

As seen from the insights above, there may be some merit in revisiting psychologist staffing levels. Barring any reduction in efficacy or degradation of patient outcomes, the California Gambling program should push clinics to minimize psychologist staffing levels and perhaps move to a per-consultation basis fee structure. Similarly, the program might want to look at increasing individual therapy hours requirements if their efficacy is high as they seem to not impact clinic costs.

B-Level Recommendations

Increase presence of ancillary services and use of master-level clinicians

The presence of ancillary services provides patients with new modalities to improve their rehabilitation and allow for a more integrated outcome and better life in the future. Seeing as these services are not correlated with an increase in cost, the Office of Problem Gambling might see it fit to issue guidelines that establish these ancillary services in as many clinics as possible.

OPG can also look into the establishment of clinics or facilities staffed exclusively by master-level clinicians, not having joint commission accreditation under the supervision of a centralized team of PhDs, PsychDs or MDs. This is particularly important as Dr. Campos had presented us earlier with increased prevalence of Gambling Addiction in lower-income communities. Master-level only clinics can provide a cheaper alternative for these individuals, who also tend to not have insurance.

C-Level Recommendations

OPG should establish large-scale rehabilitation facilities

The data clearly shows that bigger facilities tend to charge lower fees. Providing incentives to healthcare providers for either expanding their existing facilities or creating new ones (particularly in lower-cost counties identified above) can significantly reduce the overall cost of gambling rehabilitation to OPG.