Cost of Illness Study: Cushing's Syndrome in the Kingdom of Saudi Arabia

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Abstract #ID 8461

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KEY LEARNINGS

Effective control of Cushing's syndrome can substantially reduce both direct medical expenditures and indirect societal costs, highlighting the value of timely intervention and comprehensive care strategies.

BACKGROUND

- Cushing's syndrome is a rare endocrine disorder caused by chronic cortisol excess, leading to significant morbidity—including obesity, hypertension, diabetes, osteoporosis, and psychiatric symptoms—and markedly reduced quality of life. [1-2]
- Uncontrolled Cushing's syndrome drives progressive complications, higher healthcare utilization, and increased costs, while severely impairing patients' physical function and psychosocial well-being through fatigue, muscle weakness, mood disorders, and reduced work capacity. [3-5]
- The global prevalence of Cushing's syndrome is estimated at 0.0057% (approximately 5.7 cases per 100,000 population), underscoring its rarity but substantial clinical impact when present. [6]
- Despite its high clinical and economic burden, local data on the cost and resource use associated with Cushing's syndrome in Saudi Arabia remain scarce, limiting evidence-based healthcare planning and policy development

OBJECTIVE

- To estimate the economic burden of Cushing's syndrome in the Kingdom of Saudi Arabia from both public healthcare payer and societal perspectives, distinguishing between controlled and uncontrolled disease states.

CONCLUSIONS

- Cushing's syndrome in Saudi Arabia generates substantial direct and indirect costs, with uncontrolled patients incurring more than double the annual expenditure of controlled cases, highlighting significant economic strain on healthcare resources.
- Early diagnosis and proactive disease management strategies are essential to reduce the long-term financial and health burdens of Cushing's syndrome, emphasizing the need for targeted policies and improved access to effective treatments

References

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METHODS

Study Design and Approach:

- A prevalence-based, bottom-up cost-of-illness model was developed over a one- to five-year horizon, incorporating transitions between controlled and uncontrolled Cushing's syndrome [Figure 1].

Data Sources and Collection:

- Clinical experts at six Saudi tertiary centers, national drug procurement data, and peer-reviewed literature provided prevalence and transition inputs.
- Standardized questionnaires captured resource use, unit costs, productivity losses, and absenteeism from clinicians, pharmacists, and health economists.

Cost Components:

- Direct costs: outpatient visits, diagnostics, pharmacotherapy, surgery, and complication management.
- Indirect costs: work absenteeism, reduced productivity, presenteeism, and caregiver burden.

- One-way sensitivity analyses varied drug and service cost inputs by ± 20% to assess uncertainty.

RESULTS

1. Saudi Arabia's Cushing's syndrome population is estimated at 0.0057% of the population, with 56.7% presenting as uncontrolled cases.
2. Controlled patients incur annual costs of SAR 88,137 ($23,500) per patient, while uncontrolled patients incur SAR 199,587 ($53,223) per patient [Figure 2–3].
3. The higher costs among uncontrolled patients underscore the economic value of achieving disease control.
4. Five-year cumulative costs per patient reach SAR 663,585 ($177,200) accounting for disease state transitions, widening the long-term cost gap [Figure 4].
5. Extrapolated nationally, the five-year economic burden is SAR 238.4–359 million ($63.6–95.8 million) for disease state transitions, reflecting substantial healthcare demand [Figure 4].
6. Uncontrolled disease drives costs by necessitating more intensive care and generating greater productivity losses.
7. Sensitivity analysis identifies disease control status as the primary determinant of total costs in Saudi Arabia.

Figure 1. | Model structure

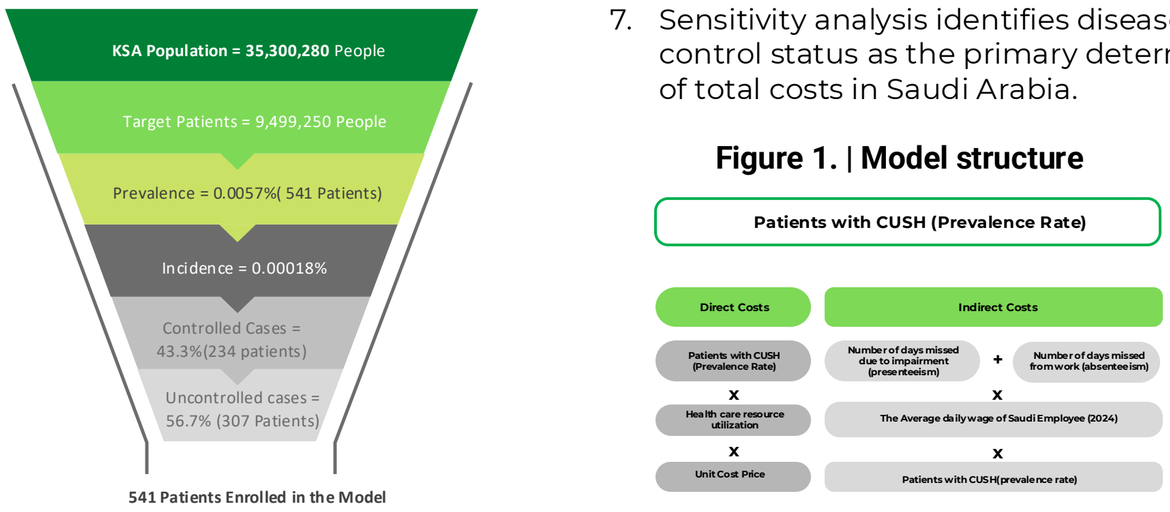

Figure 2. | Total Costs for Controlled Cushing's Cases in KSA (SAR)

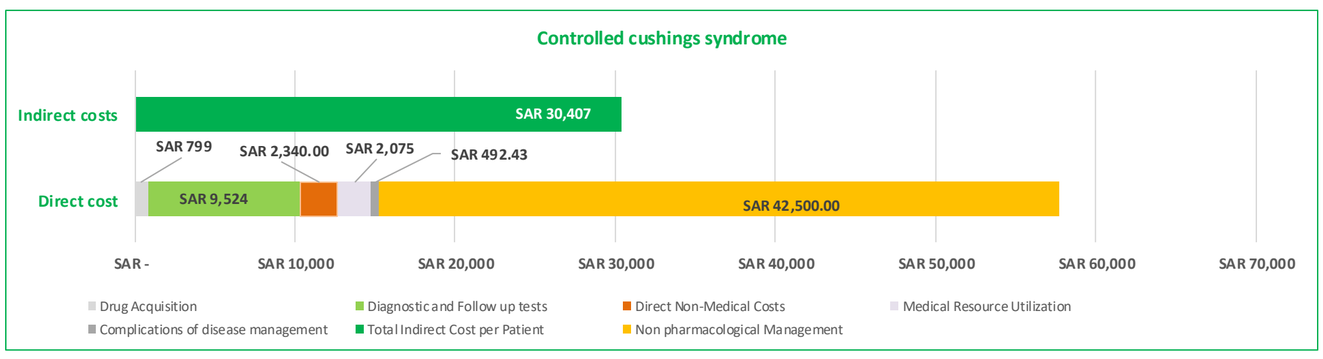

Figure 3. | Total Costs for Uncontrolled Cushing's Cases in KSA (SAR)

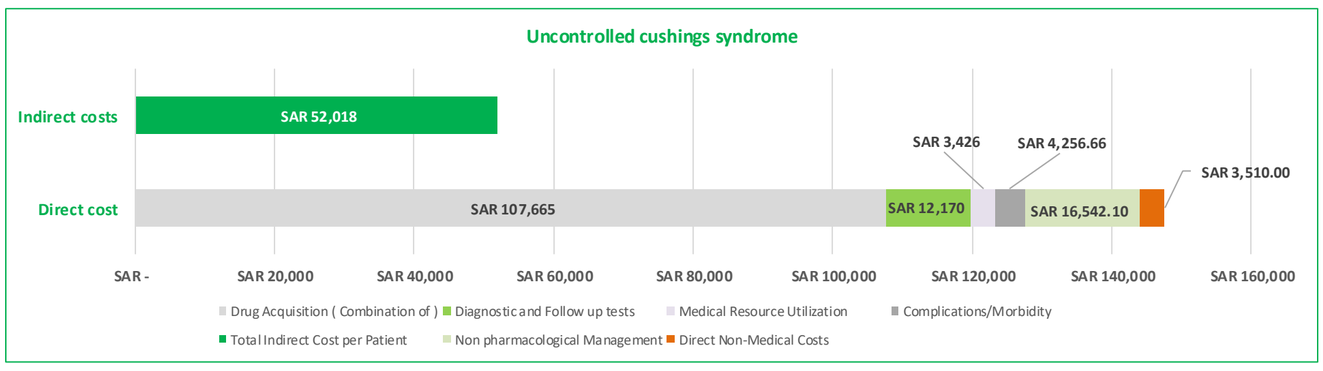

Figure 4. | Over Years Costs with Cushing's Cases in KSA (SAR)

2 Years Result from Health Disease Statues : **SAR SAR 287,725 per patient***

3 Years Result from Health Disease Statues : **SAR 487,313 per patient ****

Digital Simulation Over years

* Assumed patient transited from controlled into uncontrolled case in 2 years cost
* * Assumed patient stayed in uncontrolled case for 2 years after one year-controlled case cost

Author contributions All authors provided substantial contributions to study conception/design, or acquisition/analysis/interpretation of data; drafting of the publication or reviewing it critically for important intellectual content; and gave their final approval of the publication.
Acknowledgments The authors thank all investigators and research staff in participating institutions.
Disclosures MA and SK: Employees of HEPA solutions; HM: Employee of Recordati Rare Disease Company; Other authors : None declared.

Presented at ISPOR EUROPE | Glasgow, Scotland | 11th November 2025 **This study was sponsored by Recordati Rare Disease**