

ASSESSING DIRECT MEDICAL COSTS OF STAGE IV NSCLC IN IRAQ FROM PUBLIC PAYER PERSPECTIVE

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INTRODUCTION

Non-small cell lung cancer (NSCLC) is the first cause of cancer related death among men and the second among women worldwide including Iraq¹. It also poses an economic threat to the sustainability of healthcare services.



OBJECTIVE

This study estimated the direct medical costs of care for patients in the Iraq population with NSCLC stage IV from the Ministry of Health perspective.



METHODOLOGY

This study combined primary and secondary sources employing mathematical modeling using a bottom-up approach over one year period. A focused literature review was conducted to examine resource utilization (laboratory tests, imaging, physician consultation and hospitalization), and adverse events (AEs) rates (Grades 3-4)^{2,3} as well as their management. Treatment regimens were derived from the most updated Iraqi guidelines⁴. All retrieved data were verified and validated through an expert workshop that included prominent expert oncologists, clinical pharmacists, and policy makers from the Ministry of Health. Costs related to medications, radiation and resources were extracted from the Ministry of Health dataset in 2023-2024. AEs costs were calculated using a micro-costing approach following ISPOR guidelines⁵. The costs of treating stage IV were determined considering the total number of patients, median number of cycles and resources utilization frequency.



RESULTS

Patients Characteristics

- In 2023-2024, a total of 2,000 lung cancer cases⁶ were identified in Iraq, with 85% (1,700 patients) identified as non-small cell lung cancer (NSCLC). Among NSCLC cases, 1,190 were diagnosed at stage 4, of whom 70% (833 patients) received treatment through government-funded healthcare. (figure 1)
- Within this group, 70% (583 patients) underwent radiation therapy.
- Lung cancer shows a higher prevalence among males compared to females (figure 2). The average age at diagnosis was 66.2 years, with a median age of 68 years.⁵

Figure 1. Bottom-up Approach Population Calculation

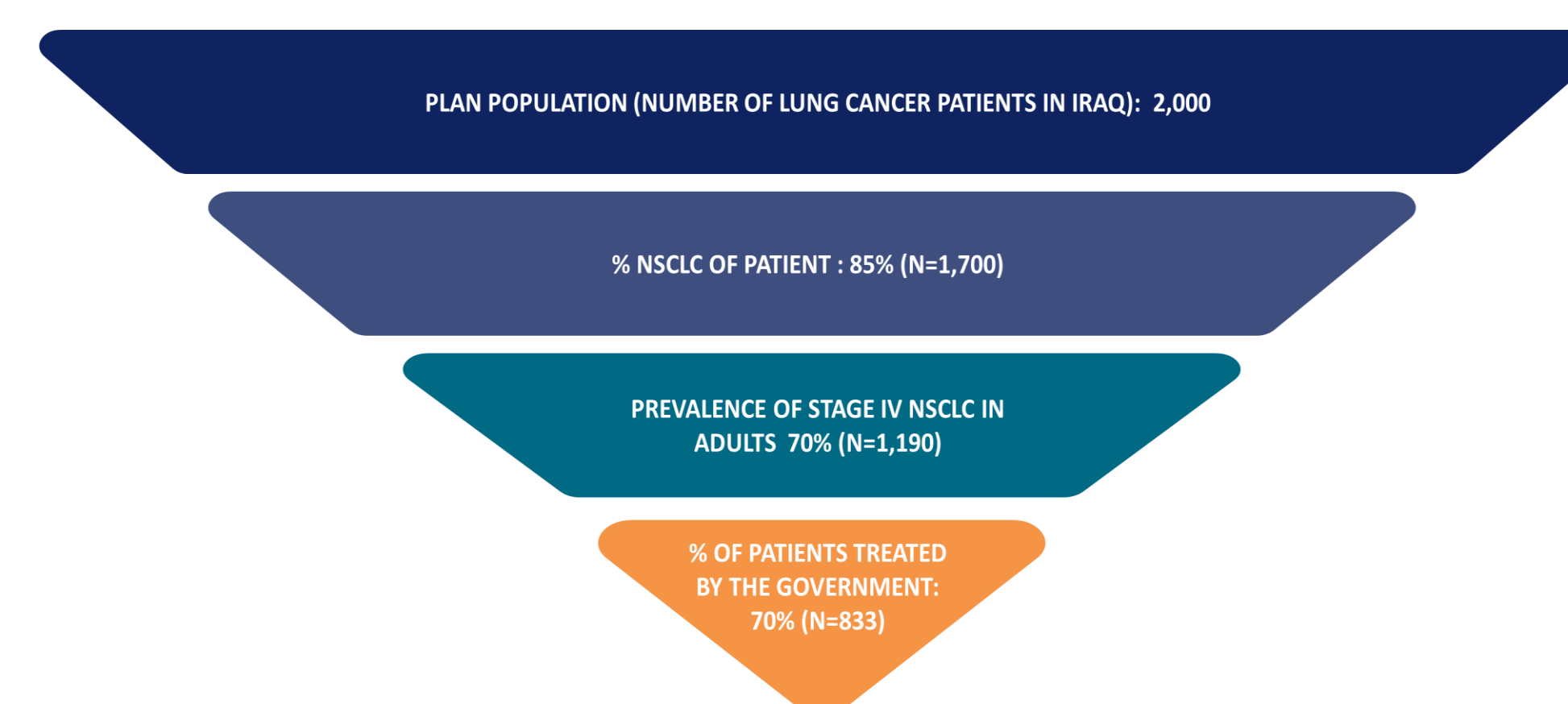


Figure 2. Gender Distribution

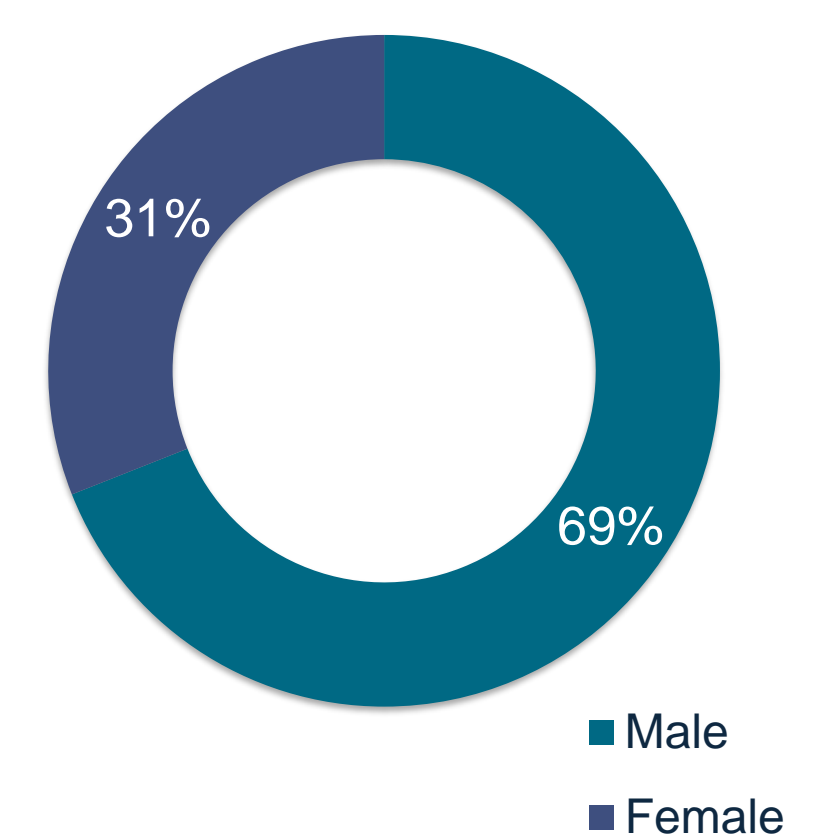


Figure 3. Treatment Market shares

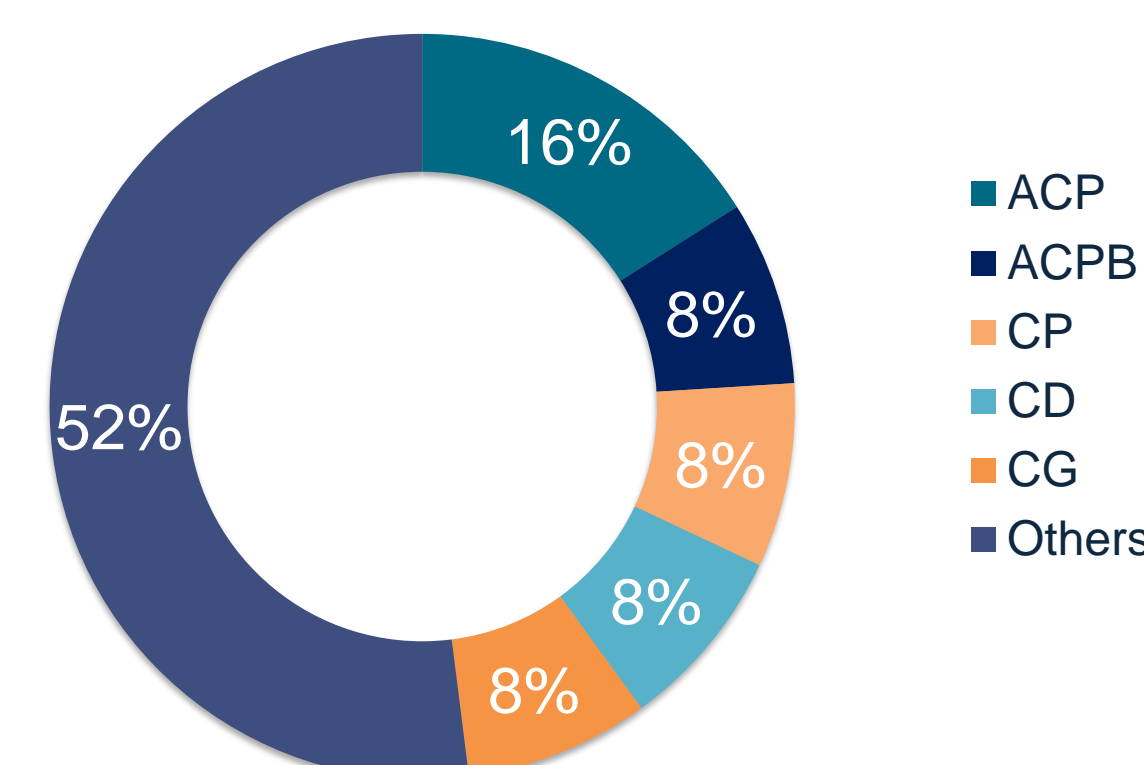


Figure 4. Most Common Adverse Event Rates

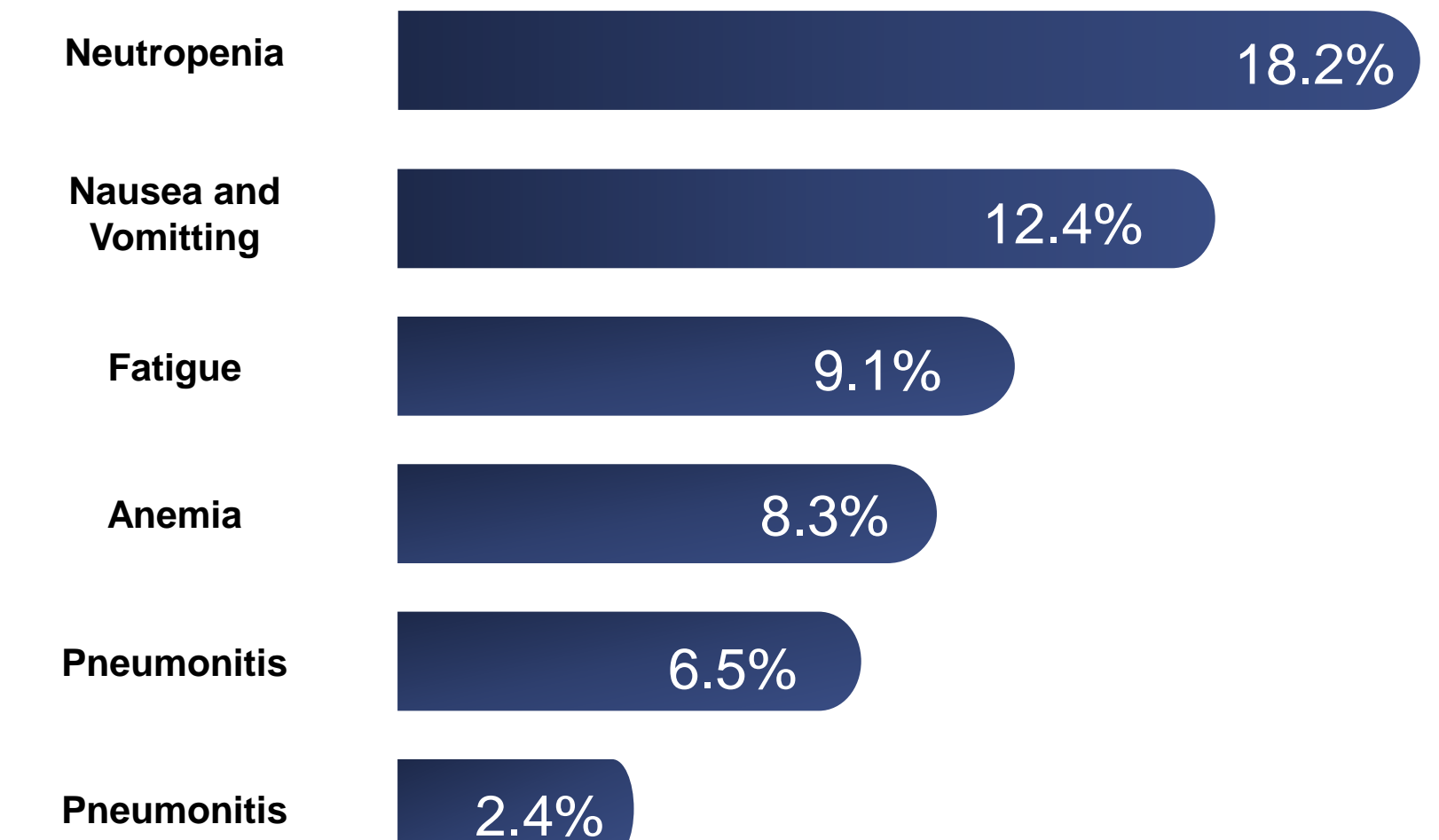
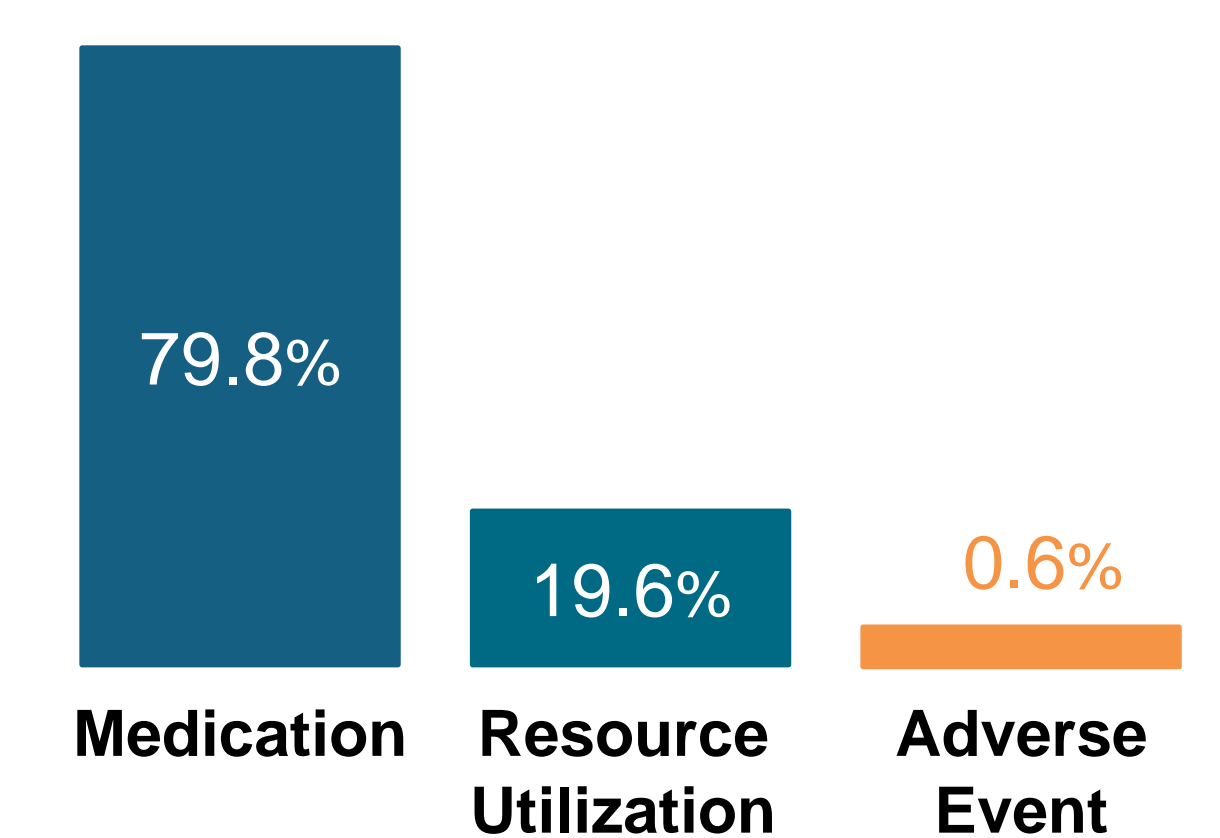


Table 1. Top 5 Drug Regimen with highest Economic Burden

| Drug Regimen | Total yearly Economic Burden |
|--------------|------------------------------|
| ACP | \$ 2,605,384.10 |
| ACPB | \$ 1,395,621.39 |
| PGC | \$ 595,460.11 |
| PPC | \$ 595,436.51 |
| Alectinib | \$ 476,309.40 |

Figure 5. Economic Burden



Treatments Dynamics

- ACP was the leading treatment option for stage IV NSCLC in 2023-2024, followed by ACPB, CP, CD, and CG (figure 3)
- Atezolizumab and pembrolizumab had the longest treatment duration followed while erlotinib, gefitinib, and gemcitabine (figure 4).
- The most common adverse events observed in NSCLC patients included nausea and vomiting, anemia, fatigue, neutropenia, pneumonitis, and diarrhea.

Economic Burden

- The annual economic burden of stage IV NSCLC is estimated at \$8.2 million USD, with medication costs being the cost driver at \$6.55 million USD.
- Additional costs include resource utilization at \$1.6 million USD, radiotherapy at \$134,113 USD, and adverse event (AE) treatment at \$48,323 USD.
- The average cost per patient amounts to \$10,201 USD.



CONCLUSION

Estimating the direct medical costs of stage IV NSCLC is fundamental to understand the impact of new therapies on healthcare services and guide policymakers in resource allocation and policy development. This first NSCLC study in Iraq will support future HEOR research on innovation in Stage IV NSCLC treatment.



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