Policy Brief
January 2025

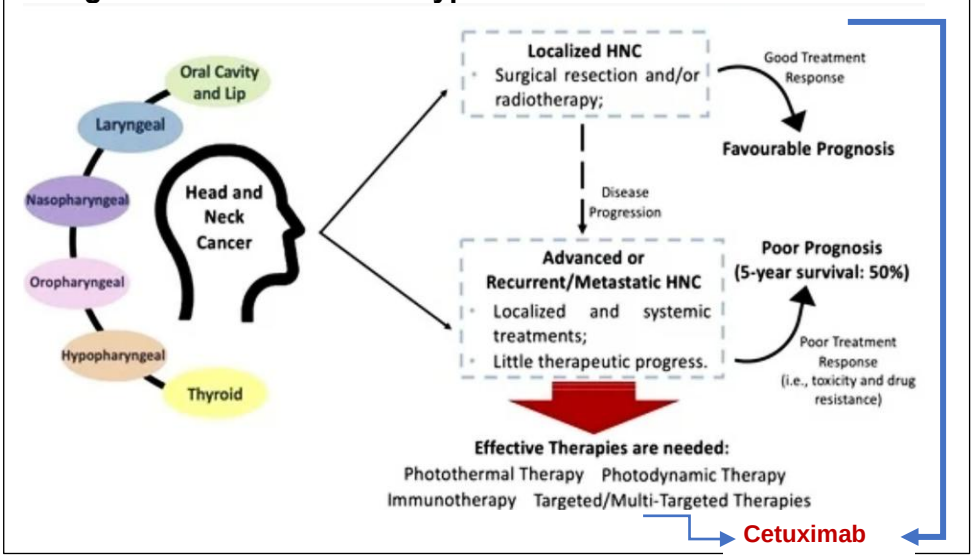
Is Cetuximab a cost-effective treatment option for the treatment of Locally Advanced and Distant Metastatic Squamous Cell Carcinoma of Head and Neck in India?

Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh

KEY RECOMMENDATION

At the cost effectiveness cut off of 1 GDP (INR 2,31,784) for procurement in public health programmes, the proposed interventions are not cost effective.

Head and neck cancer (HNC) comprises 5% of all malignancies worldwide, with head and neck squamous cell carcinoma (HNSCC) being the most common subtype.



Overview of scenarios considered for assessment of cost-effectiveness of Cetuximab for the eatment of locally advanced and distant metastatic squamous cell carcinoma of head and neck in India

	Scenario I: Locally Advanced Head and Neck Cancer	Scenario II: Distant metastatic head and neck cancer
Population		
Intervention and Control	• Radiotherapy (RT) plus Cetuximab • Radiotherapy alone	• Platinum-based chemotherapy plus Cetuximab • Platinum-based chemotherapy
Outcome	**Incremental cost per Quality-Adjusted life year gained**	

RESULTS

- **Scenario I:** Adding Cetuximab to Radiotherapy resulted in gain of **0.359 QALYs** per cancer patient at an **additional cost of ₹ 2,56,635** for the treatment of locally advanced head and neck cancer in India.
- **Scenario II:** Adding Cetuximab to Platinum-based chemotherapy resulted in gain of **0.043 QALYs** per cancer patient at **an additional cost of ₹ 401,299** for the treatment of distant metastatic head and neck cancer in India.
- **Incremental cost-utility ratio:** Incremental cost per QALY gained per cancer patient was found to be ₹ 401,299 with use of RT + cetuximab and ₹ 76,47,403 with use of chemotherapy + cetuximab, proving it to be **not cost-effective** for India.

DATA SOURCES

1. Transition probabilities: Bonner and EXTREME trials
2. Disease specific mortality rates: Nandkumar et al 2016.
3. Utility scores: CaDCQoL database
4. Cost of treatment including Radiotherapy: Reimbursement rates under AB PM-JAY.
5. Direct non-medical expenditure - CaDCQoL database.
6. Cost of diagnostic services: Central Government Health Scheme rates.
7. Price of Cetuximab: Market prices

COST-EFFECTIVENESS ANALYSIS RESULTS

Treatment strategy	Cost (in ₹)	QALYs	Incremental cost (in ₹) per QALY gained
Scenario I			
Radiotherapy plus Cetuximab	8,65,899	2.83	401,299
Radiotherapy alone	7,21,969	2.48	
Scenario II			
Platinum-based chemotherapy plus Cetuximab	5,23,797	0.83	76,47,403
Platinum-based chemotherapy alone	1,91,942	0.79	

PRICE THRESHOLD ANALYSIS

At the current WTP threshold of one-time per capita GDP (₹ 171,498) of India, Cetuximab has only 1.6% probability of being cost-effective as compared to RT alone in the Indian context.

CONCLUSION

Cost-effectiveness−Incremental cost-utility ratio (ICUR) Scenario I:
The incremental cost per QALY gained per cancer patient was Rs 401,299 (1.73 times GDP per capita) with the use of RT + cetuximab.

Cost-effectiveness - Incremental cost-utility ratio (ICUR) Scenario II:
₹76,47,403 (32.99 times GDP per capita) with chemotherapy + cetuximab.