

# Costs of adverse event management associated with first-line cetuximab or panitumumab in metastatic colorectal cancer patients in Algeria

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## CONCLUSION

- Treatment with 1L cetuximab (CET)+chemotherapy (CT) is projected to result in fewer adverse events (AEs) than panitumumab (PAN)+CT in patients with metastatic colorectal cancer (mCRC)
- The lower AE frequency could result in lower AE management costs with CET+CT versus PAN+CT, potentially alleviating the financial burden on Algerian healthcare system



## Potential Annual Cost Saving With Cetuximab+CT vs Panitumumab+CT



Outpatient costs



Inpatient costs

For all eligible mCRC patients



45 076 948 DZD

165 966 165 DZD

Per patient



132 579 DZD

488 136 DZD



## INTRODUCTION

- In Algeria, patients with *RAS* wild-type (wt) metastatic colorectal cancer (mCRC) can be treated with epidermal growth factor receptor (EGFR) monoclonal antibodies cetuximab (CET) or panitumumab (PAN) in combination with chemotherapy (CT)<sup>1</sup>
  - Cetuximab, an IgG1 monoclonal antibody, is indicated for the treatment of *RAS* wt mCRC in combination with irinotecan-based CT in any line, as first-line (1L) in combination with FOLFIRI or FOLFOX, and as a monotherapy in patients who have failed oxaliplatin- and irinotecan-based therapy and who are intolerant to irinotecan<sup>2</sup>
  - Panitumumab, an IgG2 monoclonal antibody, is indicated for the treatment of *RAS* wt mCRC in 1L combination with FOLFOX or FOLFIRI, in second-line combination with FOLFIRI in patients who have received 1L fluoropyrimidine-based CT (excluding irinotecan), and as a monotherapy after failure of fluoropyrimidine-, oxaliplatin-, and irinotecan-containing CT regimens<sup>3</sup>
- In addition, rechallenge with anti-EGFR therapy is a valuable third-line treatment strategy for patients with mCRC<sup>4,5</sup>
- A clinician's choice of an anti-EGFR as a 1L treatment will be based on various factors, including adverse events (AEs)
- The costs associated with managing AEs varies depending on the AE profile of an anti-EGFR therapy. The financial impact of AE management costs on Algeria's national health fund has not been studied



## OBJECTIVE

- To estimate the financial impact of AE management costs associated with CET+CT vs PAN+CT therapies on Algeria's national health fund using a country-specific cost model



## METHODS

- A model was developed to estimate the costs of AE management associated with 1L CET+CT and PAN+CT regimens based on AE frequency and severity. Costs were estimated based on expenses incurred by patients without reimbursement
- The frequencies of common and very common AEs were sourced from the Summaries of Product Characteristics<sup>2,3</sup>
- The severity of AEs was determined based on the meta-analysis by Petrelli et al. (2018)<sup>6</sup> which provides evidence on the frequency of all-grade and grade 3/4 AEs associated with CET+CT and PAN+CT
- The number of patients receiving each anti-EGFR therapy in Algeria was derived from global and local databases and market share data
- Base case (inpatient resource use and costs) were based on the Diagnosis Related Groups (DRGs) and derived from the average number and cost of hospitalizations reported in literature sources
- A sensitivity analysis was conducted using the upper and lower limits of the AE frequency definitions (i.e., very common  $\geq 1/10$ , common  $\geq 1/100$  to  $< 1/10$ )
- The model inputs and results were validated by Algerian physicians who specialize in treating mCRC and use both CET+CT and PAN+CT as treatment options



## RESULTS

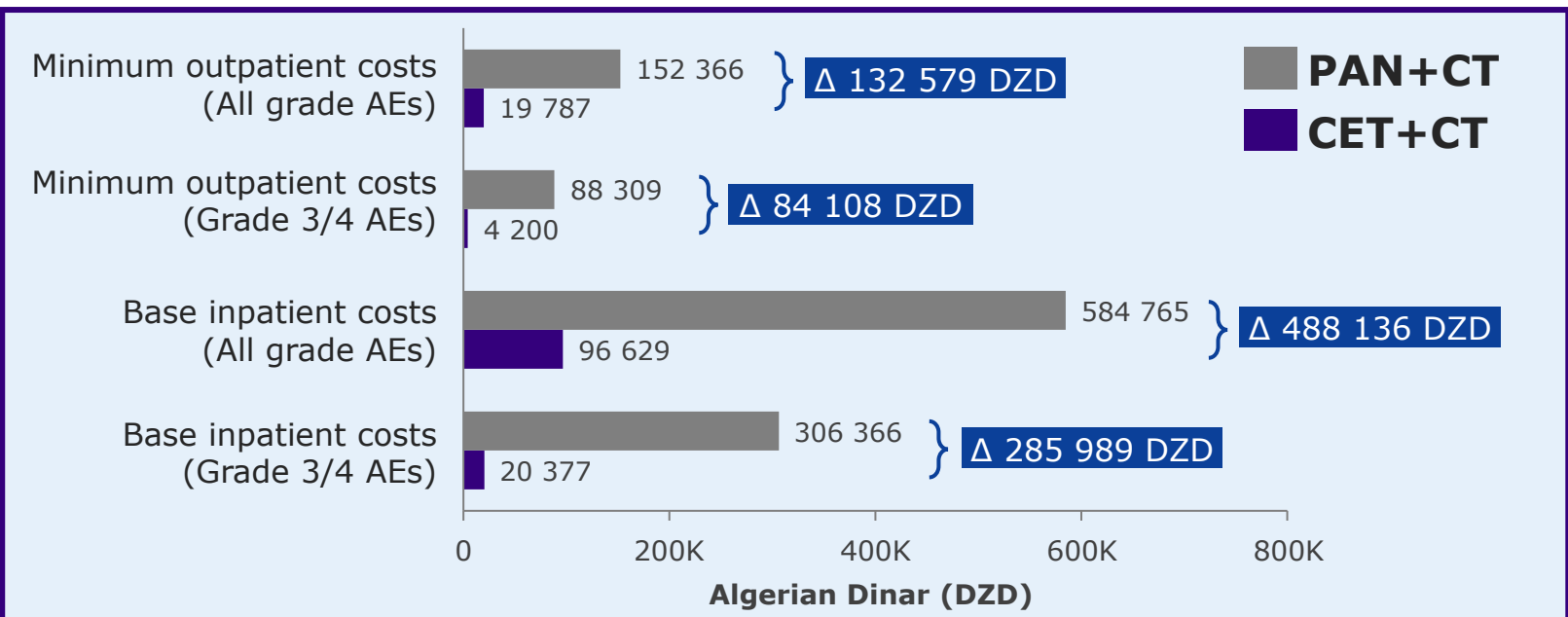
- A total of 2677 patients were estimated to be eligible for anti-EGFR therapy in 2020; of these, 46% received PAN+CT
- In patients receiving CET+CT, all-grade AEs were estimated to be 58.1% lower and Grade 3/4 AEs were estimated to be 70.2% lower than in those receiving PAN+CT (**Table 1**)

**Table 1. Estimated frequency of AEs in patients with mCRC receiving CET+CT or PAN+CT**

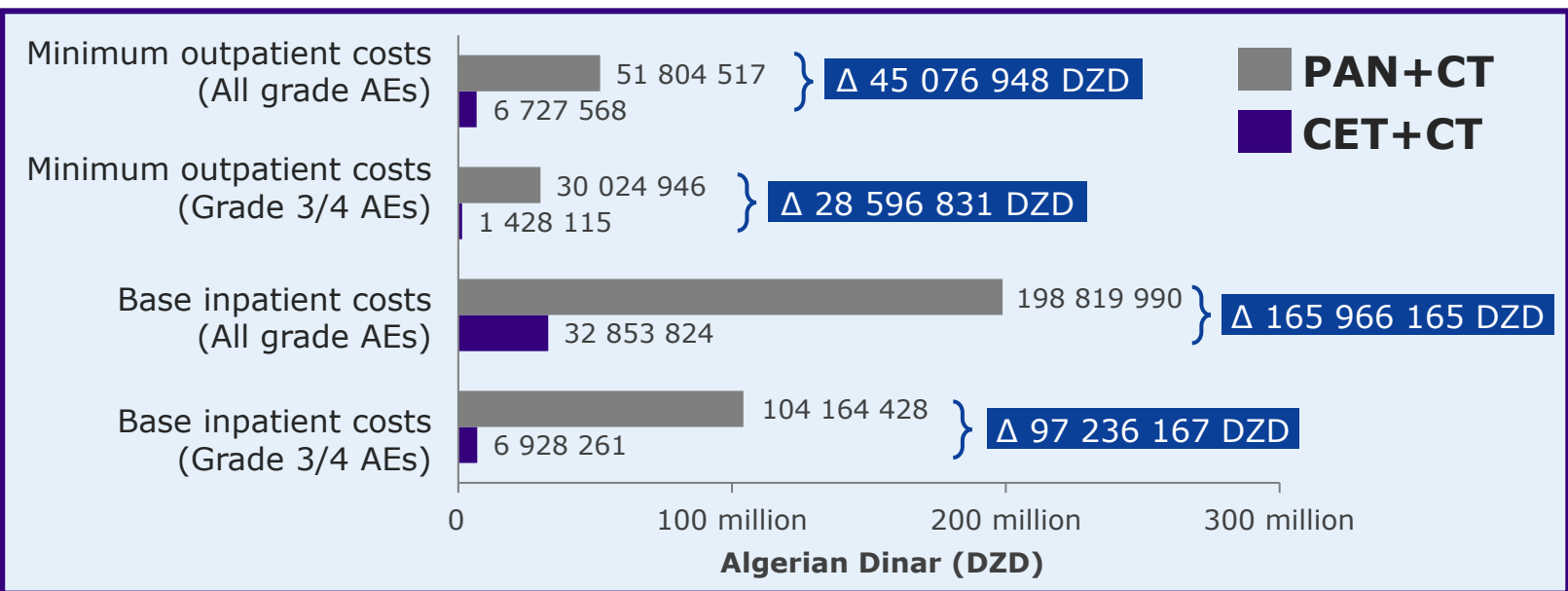
Number of AEs	All grade AEs		Grade 3/4 AEs	
	CET+CT	PAN+CT	CET+CT	PAN+CT
Blood & lymphatic system disorders	-	206	-	194
Cardiovascular diseases	-	94	-	94
Eye disorders	19	318	5	99
Gastrointestinal disorders	37	1029	9	197
General disorders & administration site AEs	598	972	129	318
Hepatobiliary disorders	187	-	47	-
Immune system disorders	-	19	-	6
Infections & infestations	187	281	47	88
Metabolism & nutrition disorders	243	636	44	144
Musculoskeletal & connective tissue disorders	-	206	-	64
Nervous system disorders	19	243	5	76
Respiratory, thoracic & mediastinal disorders	187	411	47	129
Skin disorders	972	1440	184	326
<b>AE total frequency</b>	<b>2450</b>	<b>5853</b>	<b>516</b>	<b>1734</b>
<b>Difference (CET+CT vs PAN+CT)</b>	<b>3403 (58.1%)</b>		<b>1218 (70.2%)</b>	

- The average per-patient cost of managing all-grade AEs with CET+CT was 488 136 DZD lower than with PAN+CT. When considering grade 3/4 AEs, the average per-patient cost was 285 989 DZD lower with CET+CT than PAN+CT (**Figure 1**)
- The annual AE management cost for total eligible population with mCRC was ~166 million DZD lower with CET+CT versus PAN+CT; for grade 3/4 AEs, the annual cost saving was ~97 million DZD (**Figure 2**)

**Figure 1. Average per-patient costs of AE management in patients with mCRC receiving CET+CT or PAN+CT**



**Figure 2. Average annual costs of AE management for total eligible mCRC population receiving CET+CT or PAN+CT**



- When using the lower and upper limits of the AE frequency definitions, average savings per patient treated with CET+CT ranged from 88 752 DZD to 887 520 DZD (**Table 2**)

**Table 2. Sensitivity analysis – cost for treating all grade AEs using minimum and maximum AE frequencies**

Per-patient inpatient costs (all grade AEs), DZD	CET+CT	PAN+CT	Difference
Minimum AE frequency	17 569	106 321	88 752
Median AE frequency	96 629	584 765	488 136
Maximum AE frequency	175 689	1 063 209	887 520

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**ABBREVIATIONS:** 1L, first-line; AE, adverse event; CET, cetuximab; CT, chemotherapy; DRGs, Diagnosis Related Groups; EGFR, epidermal growth factor receptor; FOLFOX, folinic acid, fluorouracil and oxaliplatin; FOLFIRI, folinic acid, fluorouracil and irinotecan; mCRC, metastatic colorectal cancer; PAN, panitumumab; wt, wild-type.

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