

ESMO DATA ON INTERNATIONAL AVAILABILITY OF CANCER MEDICINES

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Committee**

Department of Breast Tumors

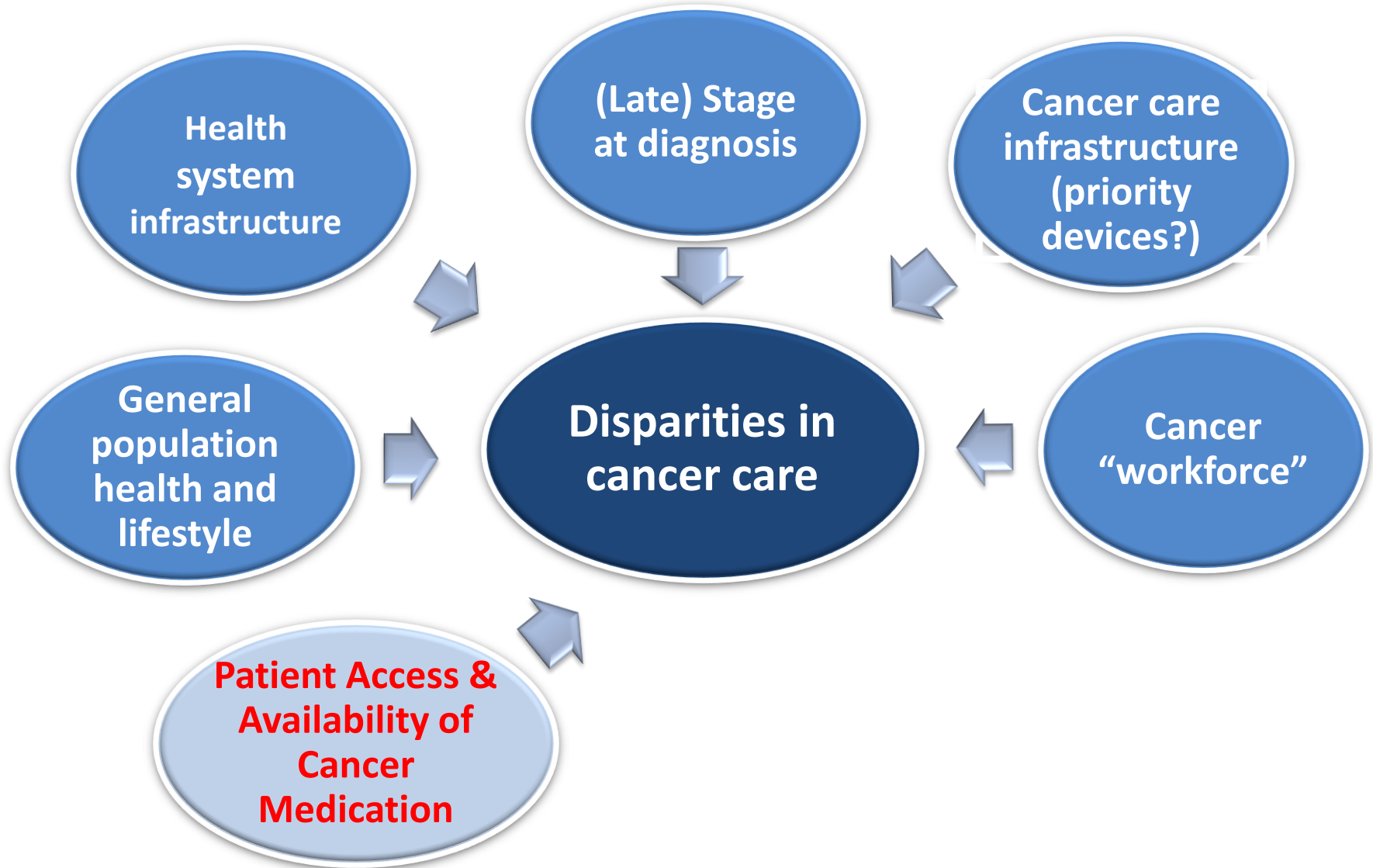
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Cluj-Napoca, Romania



Factors accounting for cancer outcomes disparities



ESMO Anti-Neoplastic Medicines Survey

Perception survey to **map access to cancer medicines**, including WHO Essential Medicines, reporting on:

■ Approval status (yes/no)

- Informative for new drugs

■ Reimbursement (yes/no)

- Highlight differences in cancer policies
- Residual (out of pocket) cost to patients
- Delays in access due to special authorization

■ Actual availability

- Drug shortage for old drugs
- Unavailability in the pharmacy (parallel export) for expensive drugs

■ Two steps: European Data and International Data

Coordinating & Collaborating Partners

■ Coordinating Organization

- ESMO

■ Collaborating Project Partners

1. World Health Organization (WHO), Geneva, Switzerland
2. Union for International Cancer Control (UICC), Geneva, Switzerland
3. Institute of Cancer Policy, Kings College, London, UK
4. European Society of Oncology Pharmacists

INTERNATIONAL SURVEY

- Breast Cancer(adjuvant)
- Breast Cancer (metastatic)
- Lung Cancer
- Colorectal Cancer
- Prostate Cancer
- Renal cell Cancer
- GIST
- Melanoma

Coordinating and Collaborating Partners

■ Collaborating Project Partners

- American Society of Clinical Oncology (ASCO)
- Chinese Society of Clinical Oncology (CSCO)
- Indian Society for Medical & Pediatric Oncology (ISMPO)
- Japanese Society of Medical Oncology (JSMO)
- Korean Association of Clinical Oncology (KACO)
- Myanmar Oncology Society (MOS)
- Medical Oncology Group of Australia Incorporated (MOGA)
- Medical Oncology Society of Peru (SPOM)
- Middle East Cancer Consortium (MECC)

Example of form :Metastatic Breast Cancer

BREAST CANCER (METASTATIC)

	Is it permitted to prescribe the medication for this indication?		Is the medicine reimbursed for this indication?		Does reimbursement require pre-authorisation?		Does the pre-authorisation process delay treatment by more than 4 weeks?		Cost of medication to patients (What proportion of the full retail price does the AVERAGE PATIENT have to pay?)					Actual availability when needed for most patients in your country (Can patients actually get the medication when it is prescribed?)					If the medication is not always available, what are the reasons for this (one or more)?				
	Yes	No	Yes	No	Yes	No	Yes	No	Free	<25% cost	25-50% cost	Discount <50%	Full cost	Always	Usually	Half the time	Occasionally	Never	No / unreliable supplier	No commercial motive *	Parallel export **	Manufacturing problems	Budget capitation ***
Albumin-bound paclitaxel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anastrozole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bevacizumab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capecitabine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carboplatinum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cisplatinum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyclophosphamide IV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyclophosphamide (tablets)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Denosumab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Docetaxel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doxorubicin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epirubicin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eribulin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

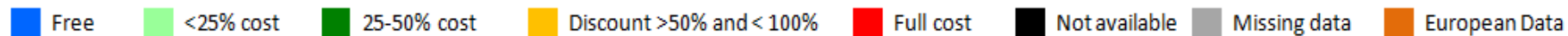
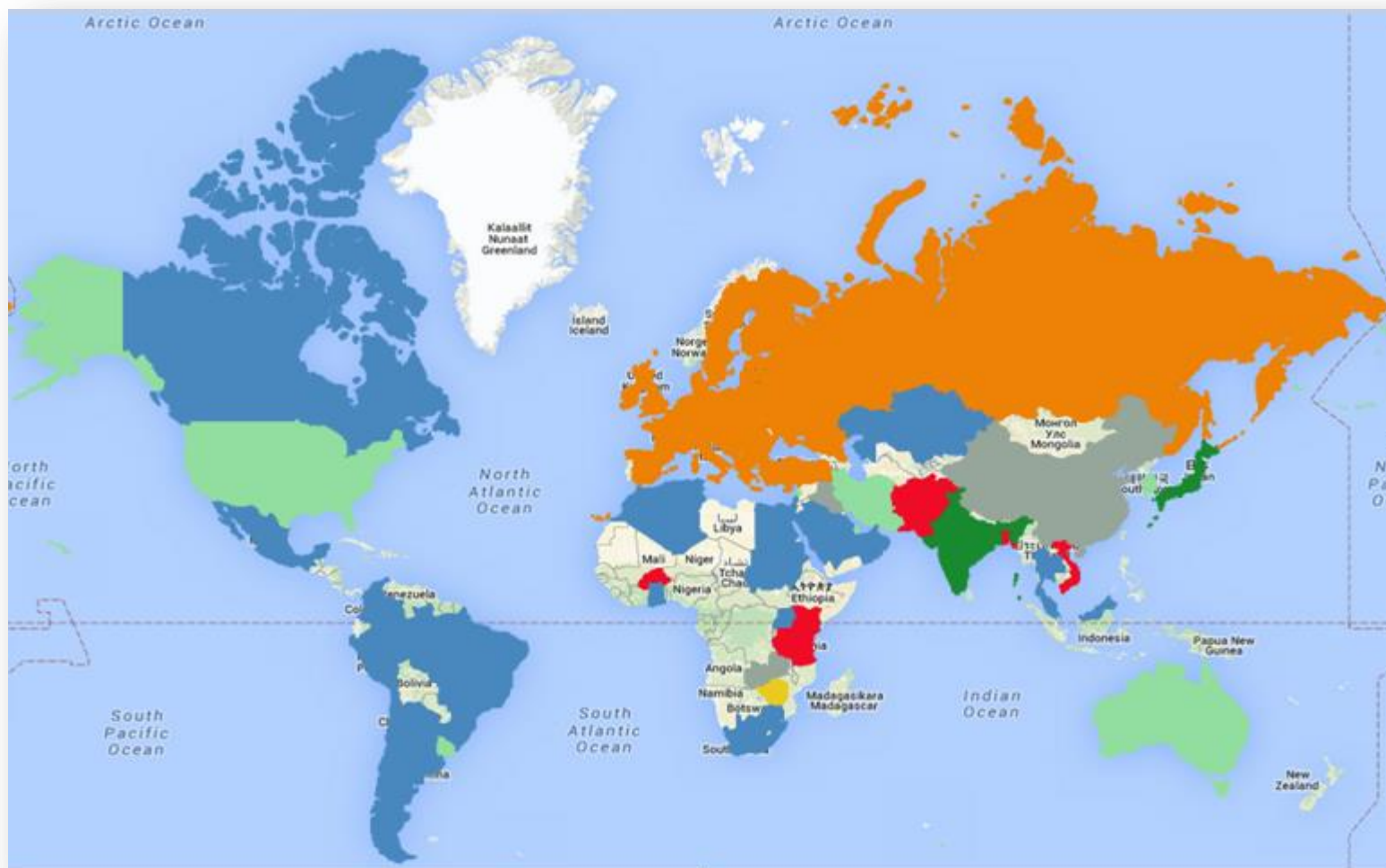
Data reporters

- ESMO National representatives
- Known credible professionals nominated by coordinating and collaborating partners
- Minimum of 2 reporters for each country nominated
- Total 439 from 119 countries
 - 185 from 49 European countries,
 - 254 from 70 countries worldwide
- Respondents
 - 42 oncology pharmacists (22 countries)
 - 147 oncologists
 - 90 Academic cancer centers or hospitals

Response Rates

	Total Countries	Surveyed Countries	percent	Total Pop (bil)	Surveyed population	Percent
Sub Saharan Africa	51	9	18%	0.795	0.245	32%
North Africa	6	4	67%	0.161	0.155	96%
Mid East	16	9	56%	0.195	0.117	60%
Asia and Indian	29	13	49%	3.703	3.192	86%
Ocana	21	1	5%	0.033	0.02	61%
N America	5	2	40%	0.332	0.332	100%
Latin AM and Carrib	45	6	13%	0.562	0.423	75%
	173	44	25%	5.781	4.484	76%

Adjuvant breast cancer: Cost & availability - Tamoxifen



WHO ESSENTIAL MEDICINES LIST 2015

Solid Tumors

- **UICC Task Force on EML:** UICC, Dana Farber Cancer Institute, ESMO, ASCO, SIOP, US NCI, NCCN International & others
- New drugs, tumor-specific indications

Cytotoxics	Cytotoxics	Cytotoxics	Hormones
bleomycin	docetaxel	irinotecan	anastrozole
calcium folinate	doxorubicin	methotrexate	bicalutamide
capecitabine	etoposide	oxaliplatin	dexamethasone
carboplatin	fluorouracil	paclitaxel	leuprorelin
cisplatin	filgrastim	rituximab	tamoxifen
cyclophosphamide	gemcitabine	trastuzumab	
dacarbazine	Ifosfamide+mesna	vinblastine	
dactinomycin	imatinib	vincristine	
		vinorelbine	

http://www.who.int/medicines/publications/essentialmedicines/EML2015_8-May-15.pdf

High

Multi-use EML

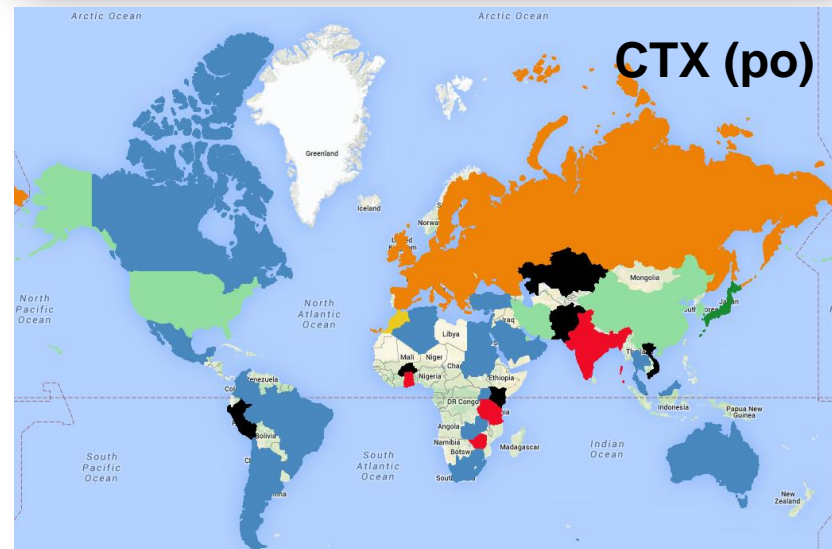
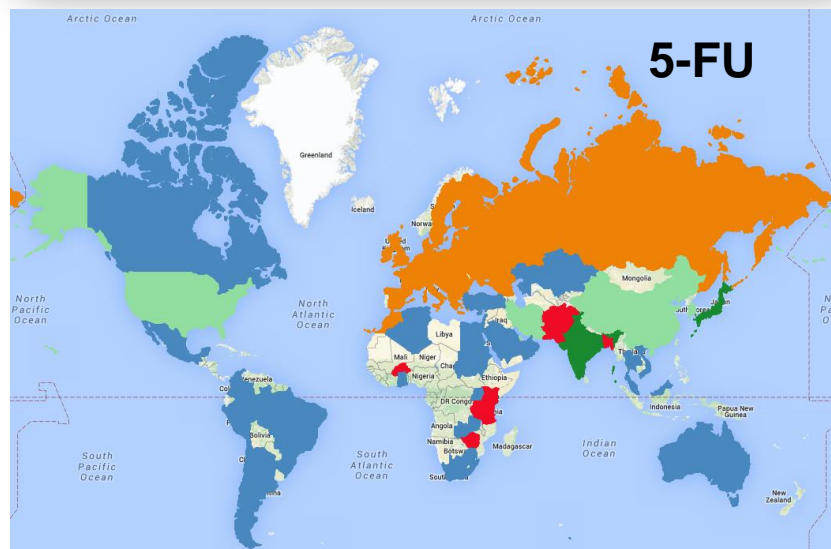
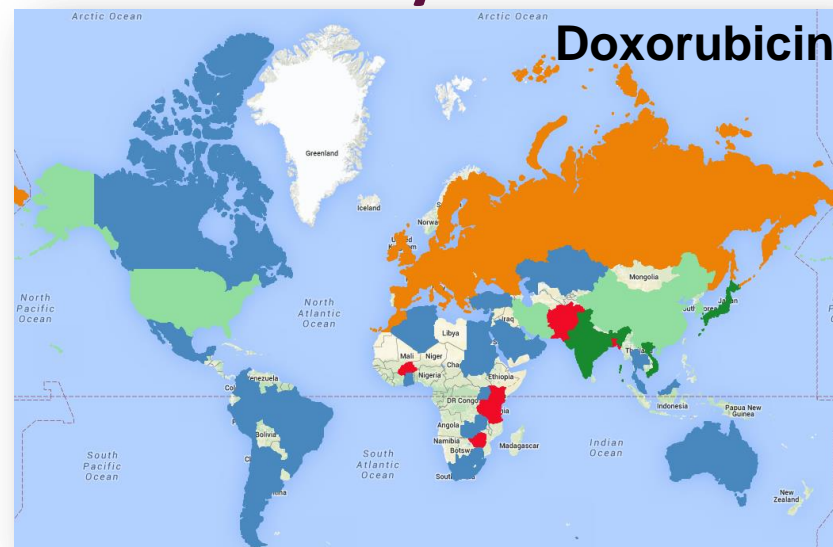
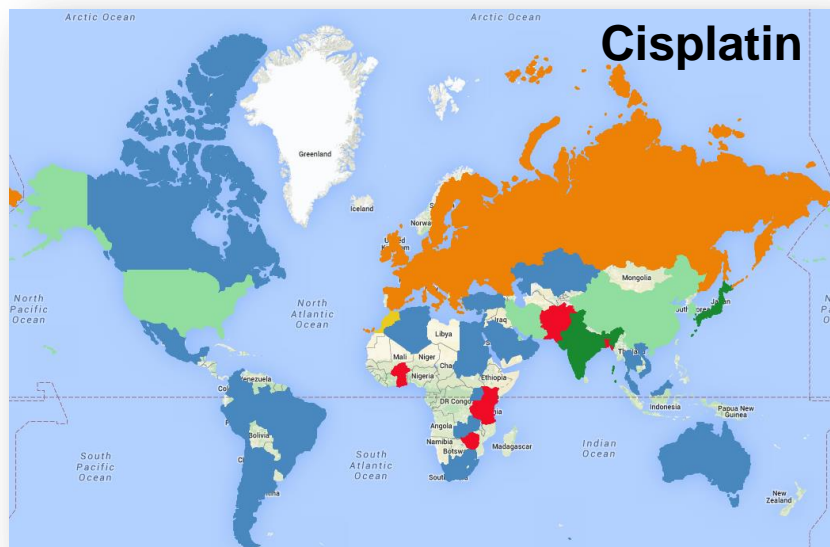
Upper Middle

Low
Middle

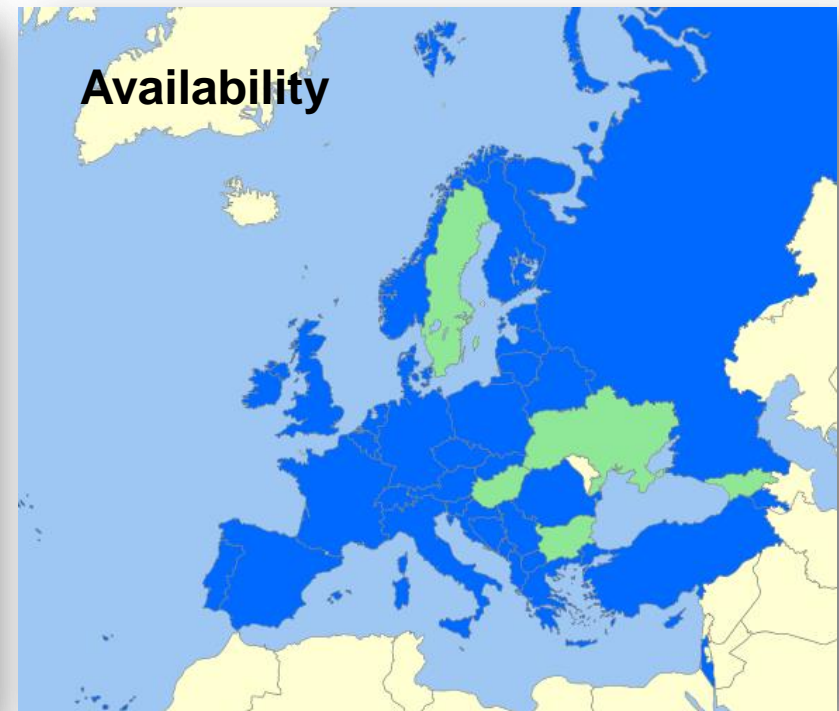
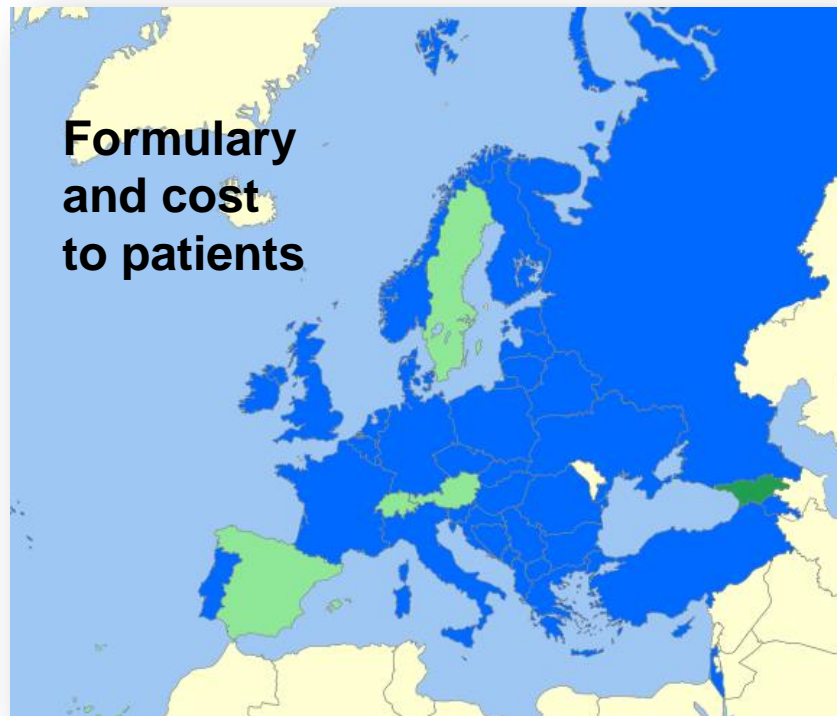
Low

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Multi-use (WHO) Essential Medicines: Cost & availability

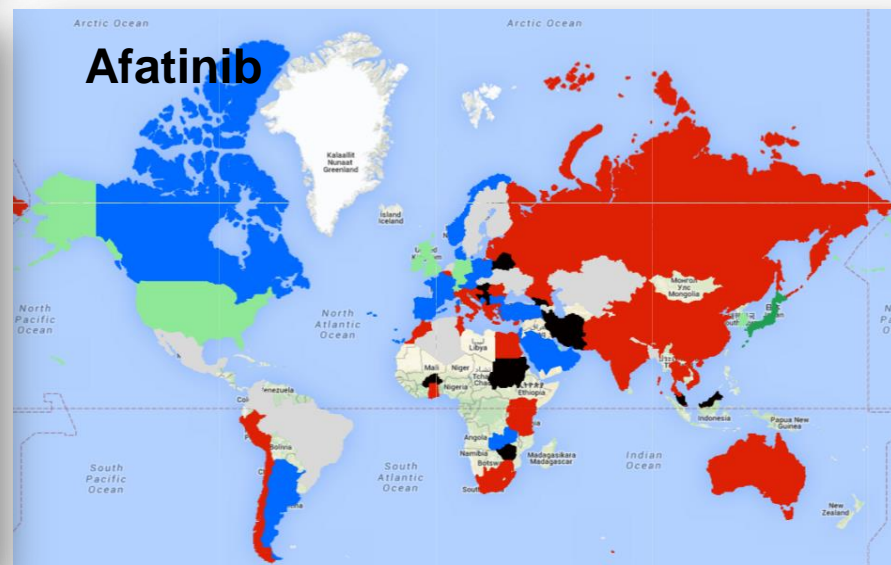
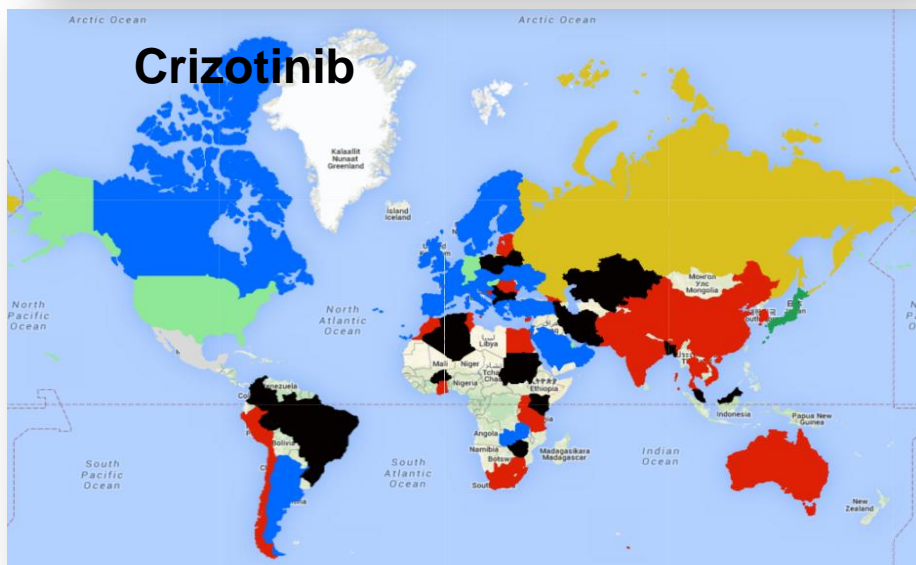
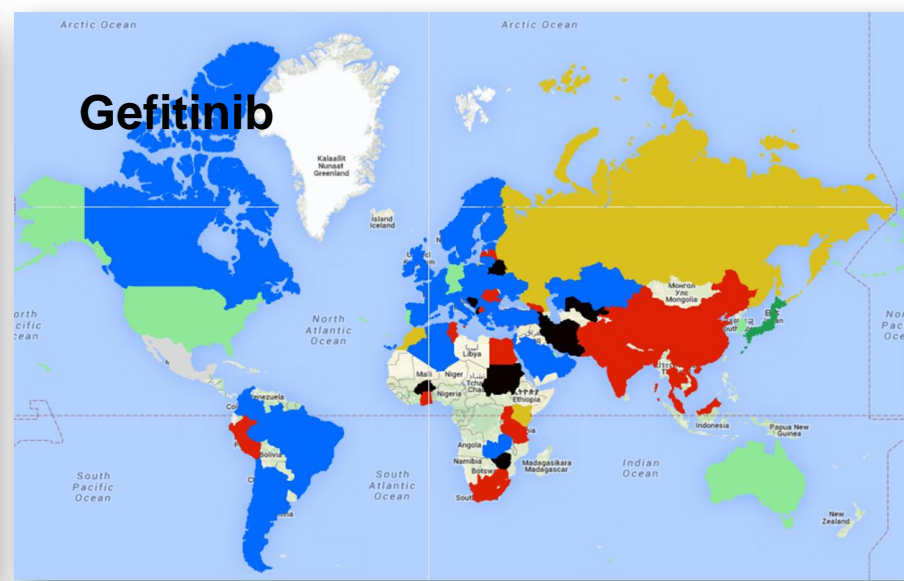
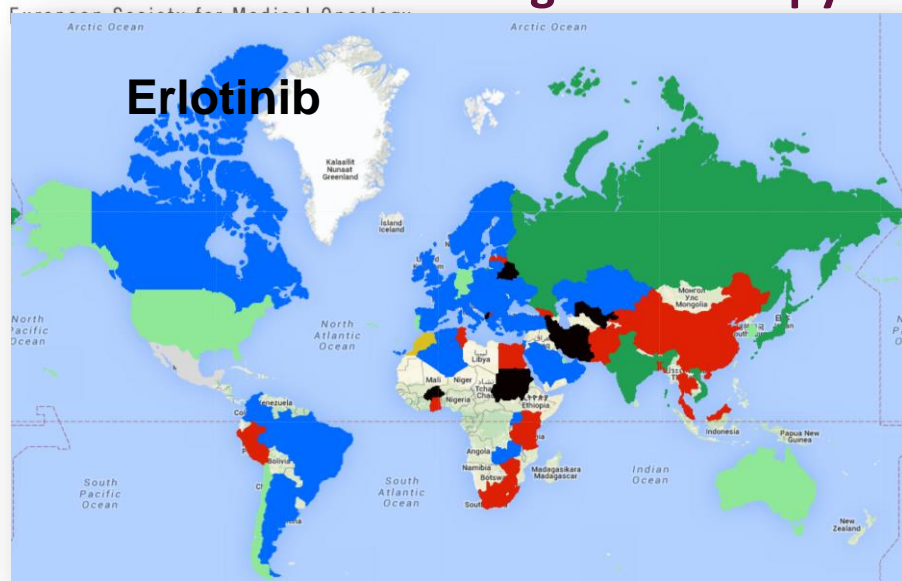


Adjuvant breast cancer: : formulary inclusion and availability : TAMOXIFEN

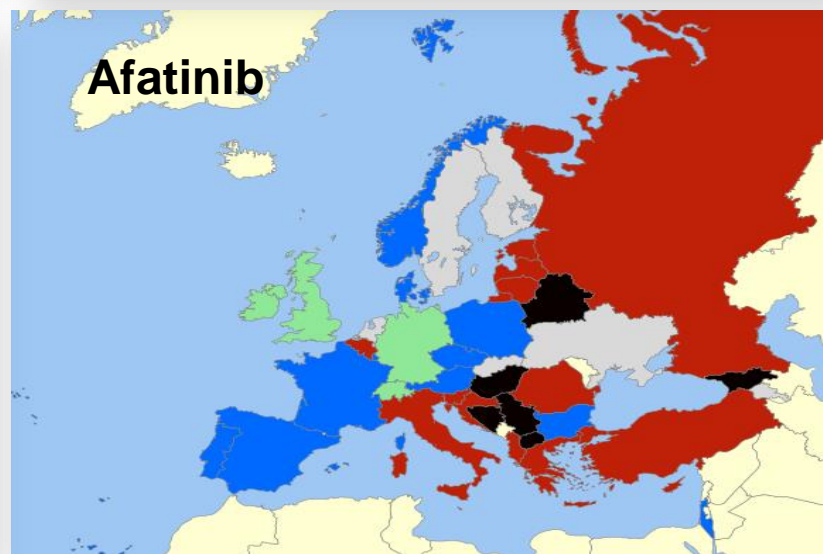
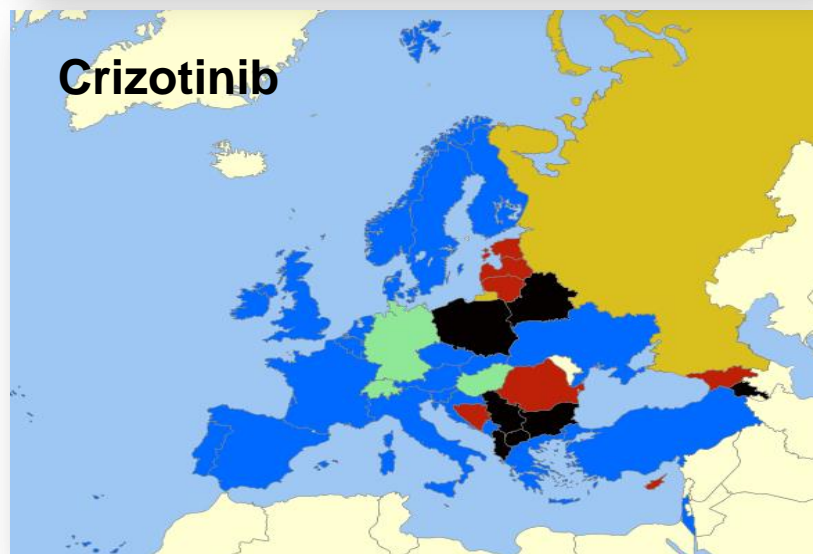
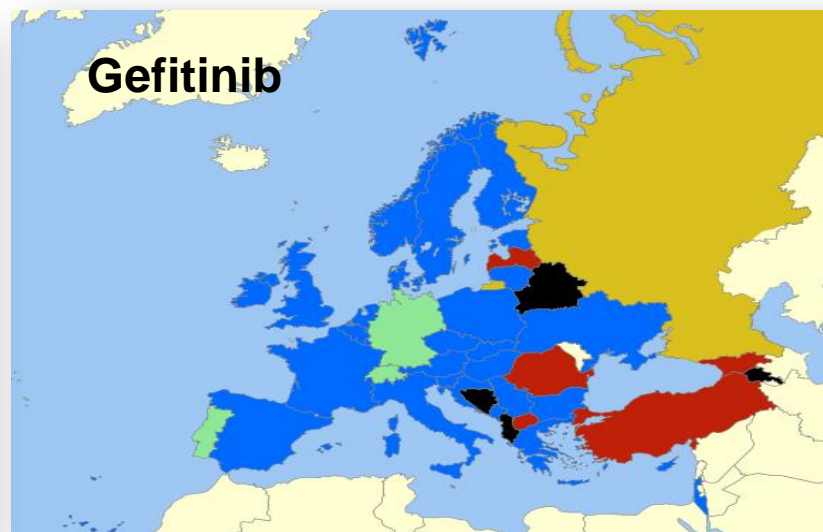
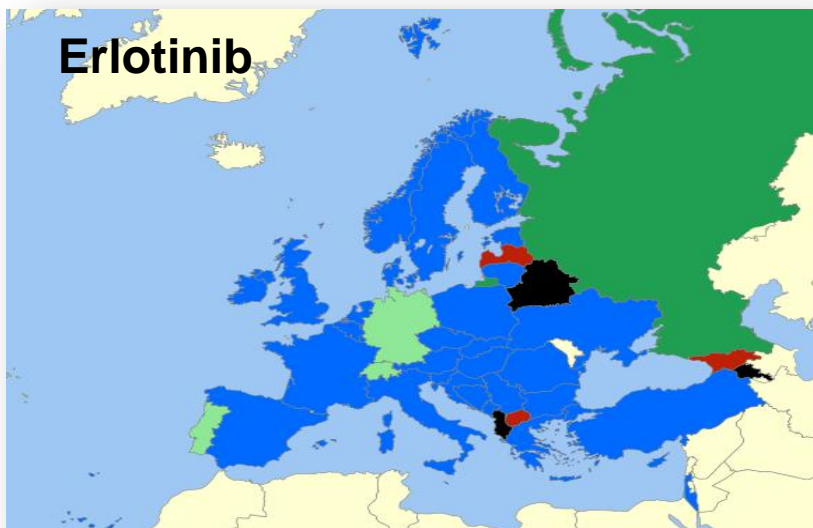


- Drug shortages affect several essential, old and inexpensive drugs (tamoxifen, doxorubicin, cisplatin, 5-FU, bleomycin...)
- Not an issue of resources!

Lung cancer :formulary inclusion and cost to patients: Targeted therapy



Lung cancer :formulary inclusion and cost to patients: Targeted therapy



Field testing Lung Cancer (1)

Medication	Trial	Setting	Primary outcome	PFS control	PFS gain	PFS HR	OS control	OS HR	QoL	Toxicity	ESMO MCBS
Erlotinib vs carboplatin + gemcitabine	OPTIMEL, CTONG-0802	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS	4.6 m	8.5 m	0.16 (0.10-0.26)				12% < serious adverse events	4
Erlotinib vs Pt-based chemo doublet	EURTAC	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	5.2 m	4.5 m	0.37 (0.25-0.54)	19.5 m	NS		15% < severe adverse reactions	4
Gefitinib vs carboplatin + paclitaxel	IPASS	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	6.3 m	3.3 m	0.48 (0.34-0.67)			↑	< toxicity	4
Afatinib vs cisplatin + pemetrexed	LUX Lung 3	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	6.9 m	4.2 m	0.58 (0.43-0.78)			↑		4
		Del19/L858R		6.9 m	6.7 m	0.47 (0.34-0.65)			↑		4
Crizotinib vs chemo	Shaw 2013	1 st line stage 3b/4 non-squamous + ALK mutation	PFS, crossover allowed	3.0 m	4.7 m	0.49 (0.37-0.64)			↑	1% > toxic death	4
Crizotinib vs cisplatin + pemetrexed	Solomon 2014	1 st line stage 3b/4 non-squamous + ALK mutation	PFS	7.0 m	3.9 m	0.45 (0.35-0.60)			↑		4

Cherny, N et al, Ann Oncol epub 30 May 2015

Example of using MCBS data: Lung cancer, Romania

Medication	Setting	Primary outcome	ESMO-MCBS
Erlotinib vs carboplatin gemcitabine	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS	4
Erlotinib vs Pt-based chemo doublet	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	4
Gefitinib vs carboplatin + paclitaxel	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	4
Afatinib vs cisplatin + pemetrexed	1 st line stage 3b/4 non-squamous + EGFR mutation	PFS, crossover allowed	4
Crizotinib vs chemo	1 st line stage 3b/4 non-squamous + ALK mutation	PFS, crossover allowed	4
Crizotinib vs cisplatin + pemetrexed	1 st line stage 3b/4 non-squamous + ALK mutation	PFS	4
Cisplatin pemetrexed vs cisplatin gemcitabine	1 st line 3b/4 (non-squamous)	PFS	4
Erlotinib vs placebo	Stage 3b/4 disease maintenance (response	PFS	1

Conclusions

- Disparities exist across Europe and the world in access to cancer medicines
- Drug shortages affect several “essential”, old and inexpensive drugs
 - THIS SHOULD BE UNACCEPTABLE !
- Inequalities exist in availability and patient costs, especially for newer, more expensive drugs
- The **ESMO Magnitude of Benefit Scale**, applied on the availability data (**ESMO Antineoplastic Medicines Survey**) can inform the process of prioritization access to medicines, when resources are limited