ΕΘΝΙΚΟ & ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ ΥΓΕΙΑΣ
ΙΑΤΡΙΚΗ ΣΧΟΛΗ

ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
<< ΑΝΑΠΤΥΞΗ ΝΕΩΝ ΦΑΡΜΑΚΩΝ: ΕΡΕΥΝΑ, ΚΥΚΛΟΦΟΡΙΑ ΚΑΙ ΠΡΟΣΒΑΣΗ >>

ΠΡΟΣΒΑΣΗ ΚΑΙ ΑΠΟΖΗΜΙΩΣΗ ΣΤΗΝ ΑΓΟΡΑ ΤΗΣ ΚΥΤΤΑΡΙΚΗΣ ΘΕΡΑΠΕΙΑΣ ΜΕ CAR-Τ-ΛΕΜΦΟΚΥΤΤΑΡΑ ΣΤΗΝ ΕΛΛΑΔΑ. ΕΜΠΟΔΙΑ ΠΟΥ ΠΡΕΠΕΙ ΝΑ ΞΕΠΕΡΑΣΤΟΥΝ

ΓΕΩΡΓΙΟΣ ΥΦΑΝΤΗΣ
ΦΑΡΜΑΚΟΠΟΙΟΣ

ΤΡΙΜΕΛΗΣ ΕΠΙΤΡΟΠΗ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

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ΑΤΤΙΚΟΝ Πανεπιστημιακό Νοσοκομείο

NATIONAL & KAPODISTRIAN UNIVERSITY OF ATHENS

FACULTY OF HEALTH SCIENCES

SCHOOL OF MEDICINE

Master of Science in:

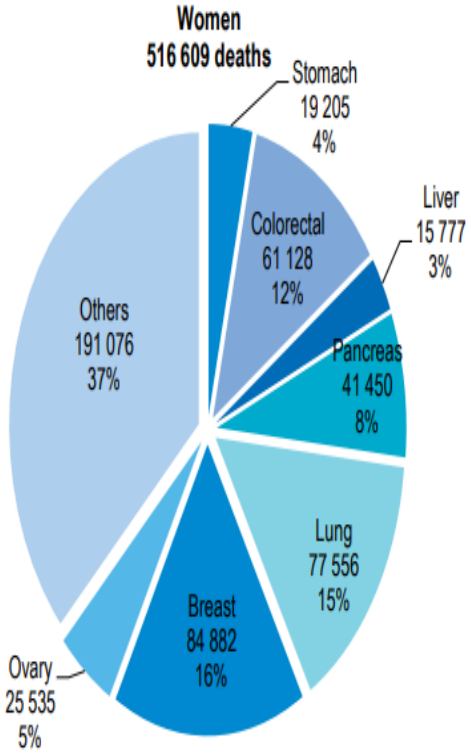
<< New Drug development: Research, Launch and Access >>

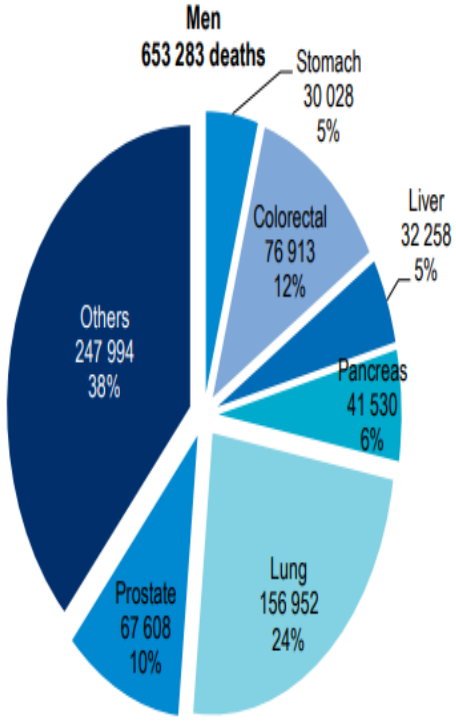
MARKET ACCESS AND REIMBURSEMENT OF CAR-T CELLS IN GREECE. BARRIERS THAT MUST BE OVERCOME

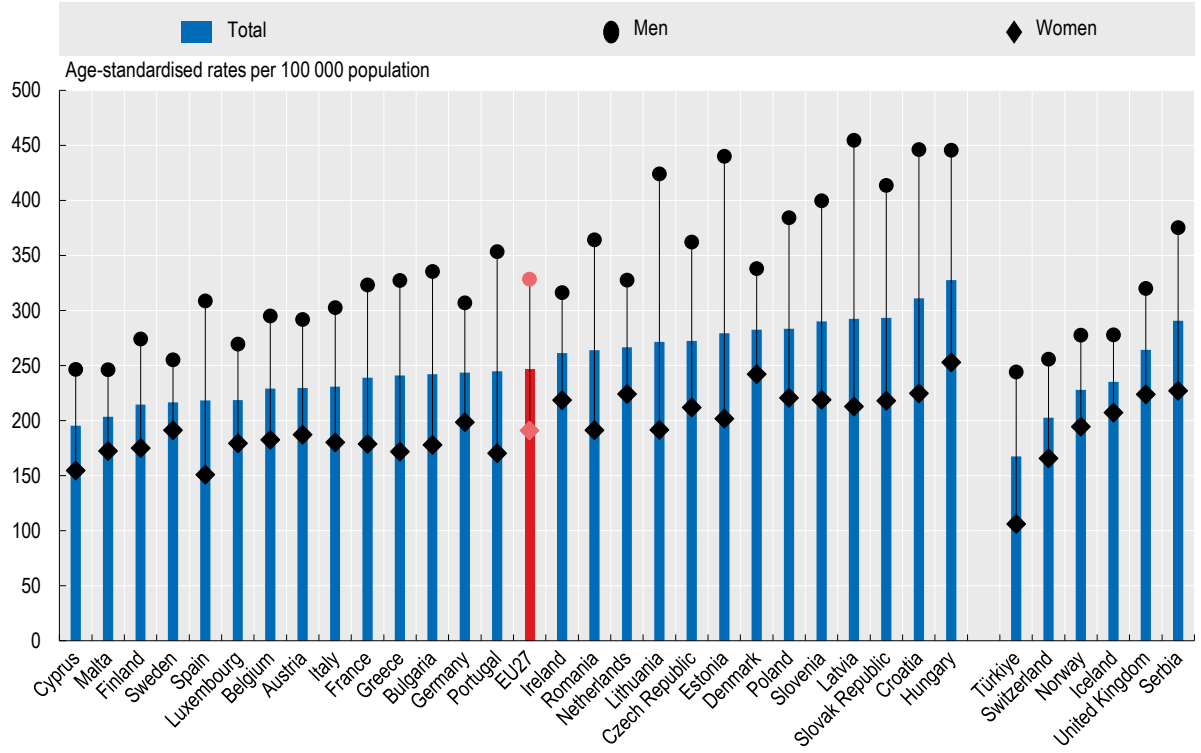
Georgios Yfantis
Pharmacist

Cancer mortality in EU countries, and Cancer mortality by gender

In 2019, almost 1.2 million people died from cancer in EU





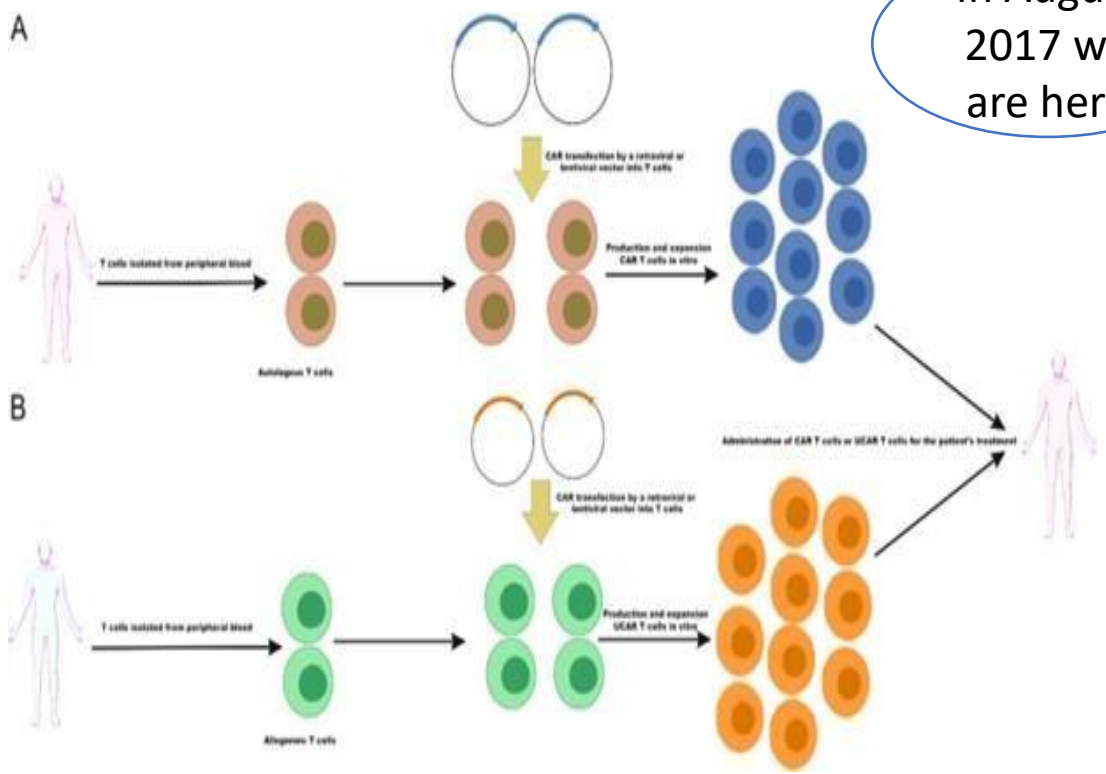


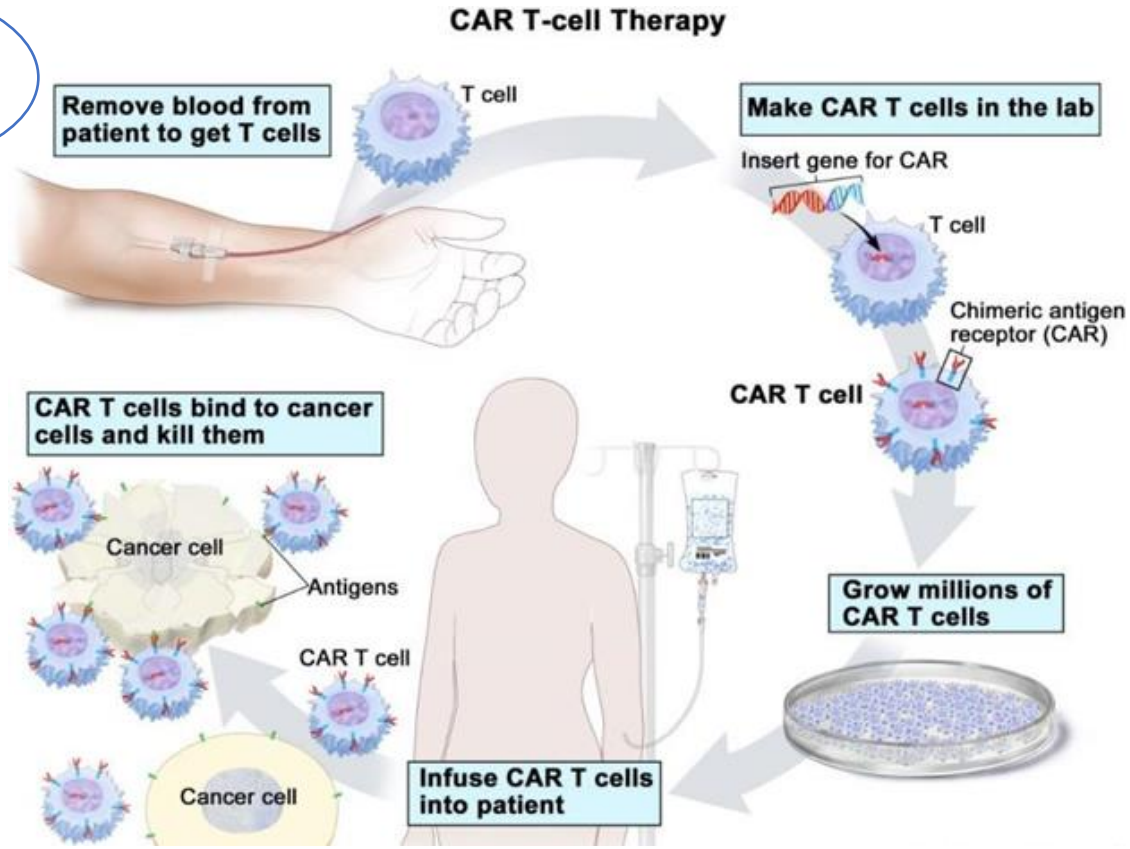
Source: Health at Glance, 2022 OECD

Personalized medicine & Innovation from 1986 to 2023

The first immunotherapy agent, an antitumor cytokine called interferon-alpha 2 (IFN-a2), was approved by the US Food and Drug Administration (FDA) in 1986

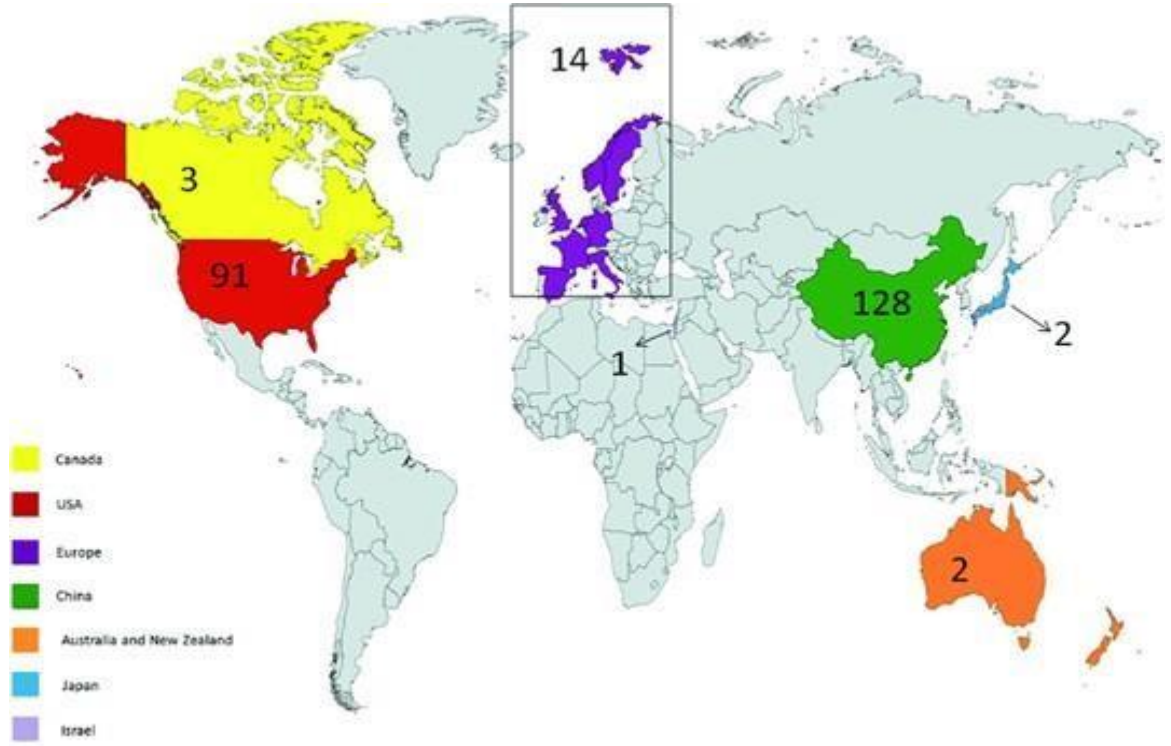
In August 2017 we are here





Source: CART manufacturing. Source: Gardner R, Wu D, Cherian S, Fang M, Hanafi L-A, Finney O, et al. Acquisition of a CD19-negative myeloid phenotype allows immune escape of MLL-rearranged B-ALL from CD19 CAR-T-cell therapy. Blood. 2016;127:2406–10.

CAR T-Cell therapy centers globally

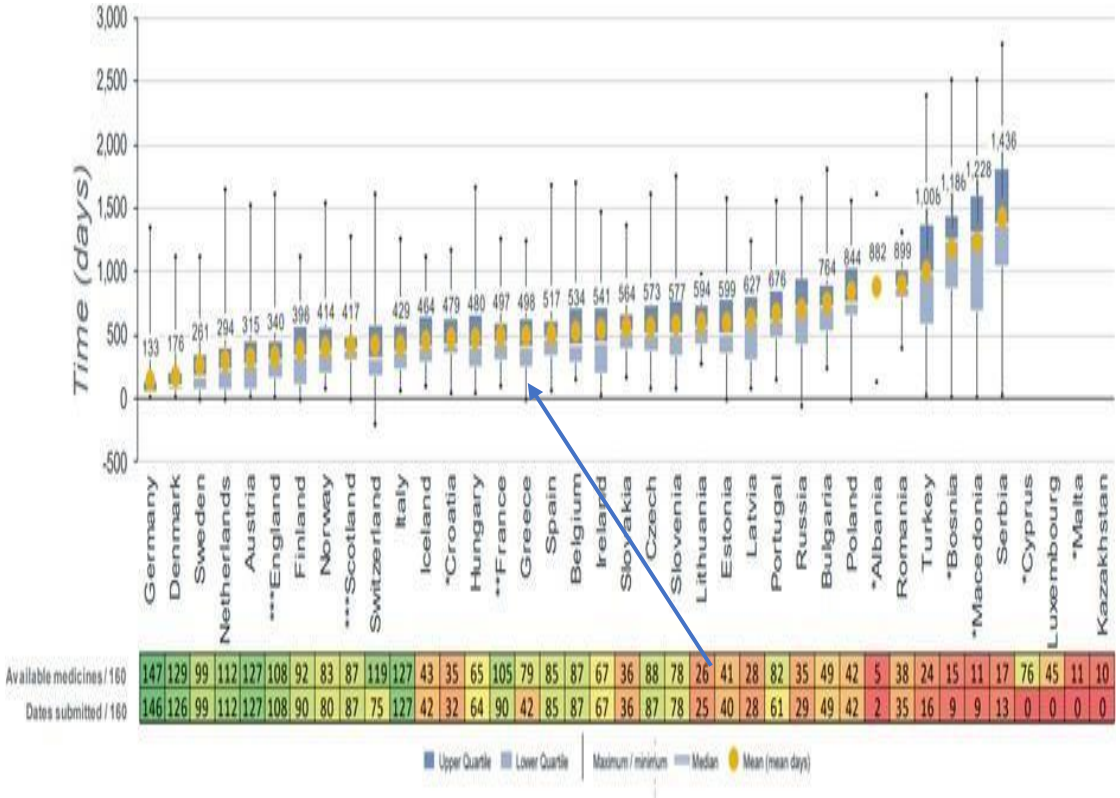


Source: Elahi, 2018 Immune Cell Hacking: Challenges and Clinical Approaches to Create Smarter Generations of Chimeric Antigen Receptor T Cells

Marketing authorization status for CAR T-cells

Medicine name	International non-proprietary name (INN) / common name	Active substance	Additional monitoring	Conditional approval	Orphan medicine	Marketing authorisation date	Condition / indication
Tecartus	Brexucabtagene autoleucel	Autologous peripheral blood T cells CD4 and CD8 selected and CD3 and CD28 activated transduced with retroviral vector expressing anti-CD19 CD28/CD3-zeta chimeric antigen receptor and cultured (brexucabtagene autoleucel)	yes	yes	yes	14/12/2020	Mantle cell lymphomaTecartus is indicated for the treatment of adult patients with relapsed or refractory mantle cell lymphoma (MCL) after two or more lines of systemic therapy including a Bruton's tyrosine kinase (BTK) inhibitor.Acute lymphoblastic leukaemiaTecartus is indicated for the treatment of adult patients 26 years of age and above with relapsed or refractory B-cell precursor acute lymphoblastic leukaemia (ALL).
Yescarta	axicabtagene ciloleucel	axicabtagene ciloleucel	yes	no	yes	23/08/2018	Yescarta is indicated for the treatment of adult patients with diffuse large B cell lymphoma (DLBCL) and high-grade B-cell lymphoma (HGBL) that relapses within 12 months from completion of, or is refractory to, first-line chemoimmunotherapy., , Yescarta is indicated for the treatment of adult patients with relapsed or refractory (r/r) DLBCL and primary mediastinal large B cell lymphoma (PMBCL), after two or more lines of systemic therapy., , Yescarta is indicated for the treatment of adult patients with r/r follicular lymphoma (FL) after three or more lines of systemic therapy.,
Carvykti	ciltacabtagene autoleucel	ciltacabtagene autoleucel	yes	yes	yes	25/05/2022	Carvykti is indicated for the treatment of adult patients with relapsed and refractory multiple myeloma, who have received at least three prior therapies, including an immunomodulatory agent, a proteasome inhibitor and an anti-CD38 antibody and have demonstrated disease progression on the last therapy.
Abecma	idecabtagene vicleucel	idecabtagene vicleucel	yes	yes	yes	18/08/2021	Abecma is indicated for the treatment of adult patients with relapsed and refractory multiple myeloma who have received at least three prior therapies, including an immunomodulatory agent, a proteasome inhibitor and an anti CD38 antibody and have demonstrated disease progression on the last therapy.
Kymriah	tisagenlecleucel	tisagenlecleucel	yes	no	yes	22/08/2018	Kymriah is indicated for the treatment of:• Paediatric and young adult patients up to and including 25 years of age with B cell acute lymphoblastic leukaemia (ALL) that is refractory, in relapse post transplant or in second or later relapse.• Adult patients with relapsed or refractory diffuse large B cell lymphoma (DLBCL) after two or more lines of systemic therapy.• Adult patients with relapsed or refractory follicular lymphoma (FL) after two or more lines of systemic therapy.
Breyanzi	lisocabtagene maraleucel	CD19-directed genetically modified autologous cell-based product consisting of purified CD8+ T-cells (CD8+ cells), CD19-directed genetically modified autologous cell-based product consisting of purified CD4+ T cells (CD4+ cells)	yes	no	no	4/04/2022	Breyanzi is indicated for the treatment of adult patients with relapsed or refractory diffuse large B-cell lymphoma (DLBCL), primary mediastinal large B-cell lymphoma (PMBCL) and follicular lymphoma grade 3B (FL3B), after two or more lines of systemic therapy.

Patient wait indicator EFPIA, days to access of medicines in EU



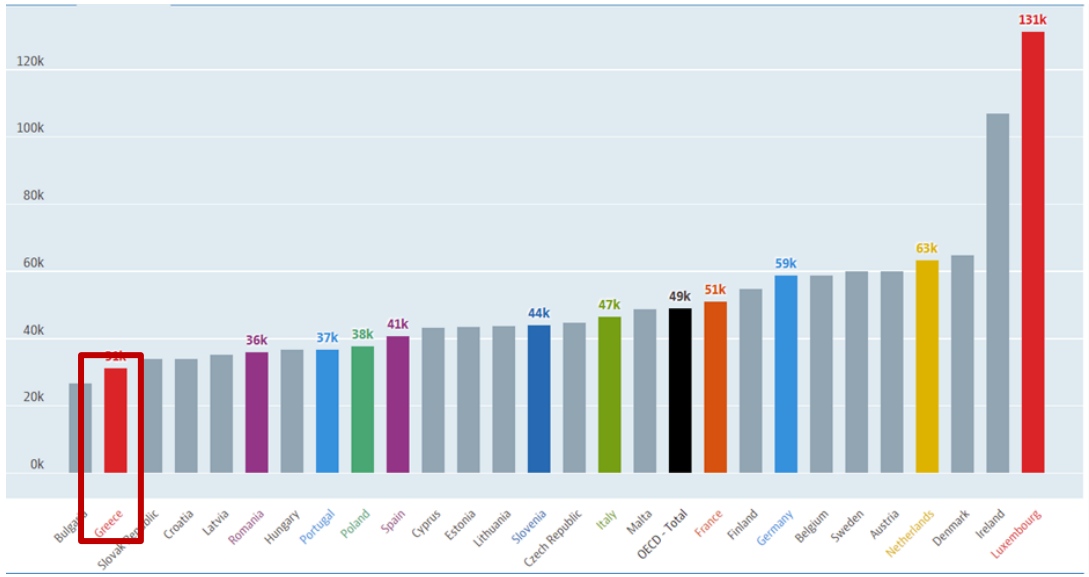
Patient wait indicator EFPIA. Source: EFPIA

Oncology		Orphan medicines		Non-oncology orphan medicines		Combination therapies	
	No of days		No of days		No of days		No of days
Germany	100	Germany	102	Germany	79	Germany	107
Austria	229	Austria	261	Austria	271	Netheralnds	196
England	268	Hungary	378	Hungary	370	Austria	232
Netherlands	270	Netherlands	380	**Greece**	**392**	England	264
Hungary	405	England	414	Netherlands	413	France	336
France	490	**Greece**	**453**	England	438	EU27	407
Croatia	491	Slovakia	565	Slovakia	540	Slovenia	415
Greece	**475**	EU27	636	EU27	587	Czech Republic	437
EU27	545	France	660	Croatia	594	Hungary	448
Slovakia	563	Czech Republic	666	Czech Republic	646	**Greece**	**493**
Portugal	753	Bulgaria	787	Poland	755	Poland	577
Romania	964	Poland	993	Bulgaria	963	Romania	863

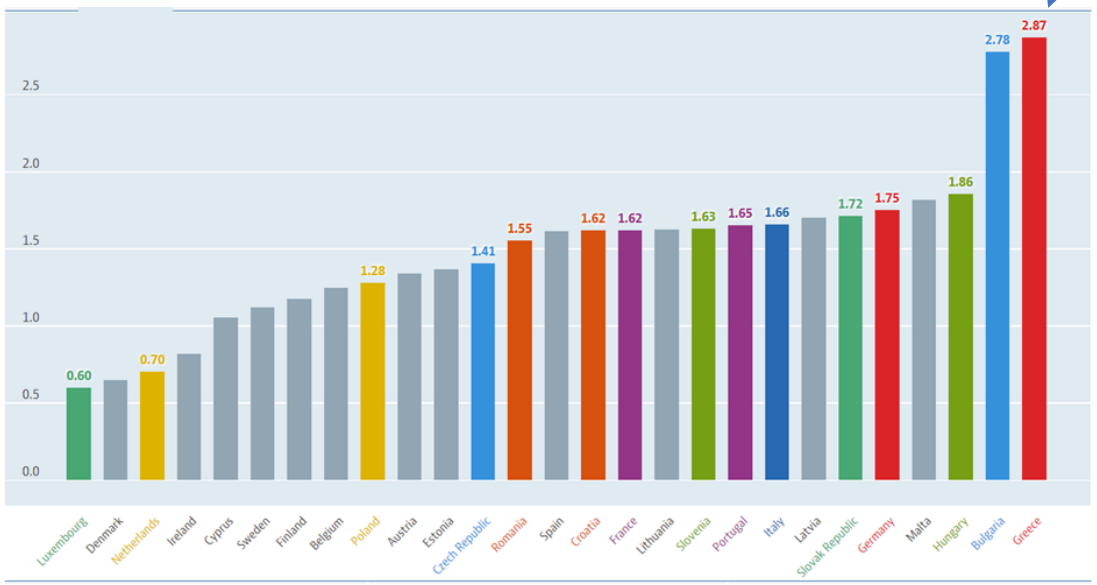
Days to access of medicines in EU. Source: EFPIA

The Greek healthcare system

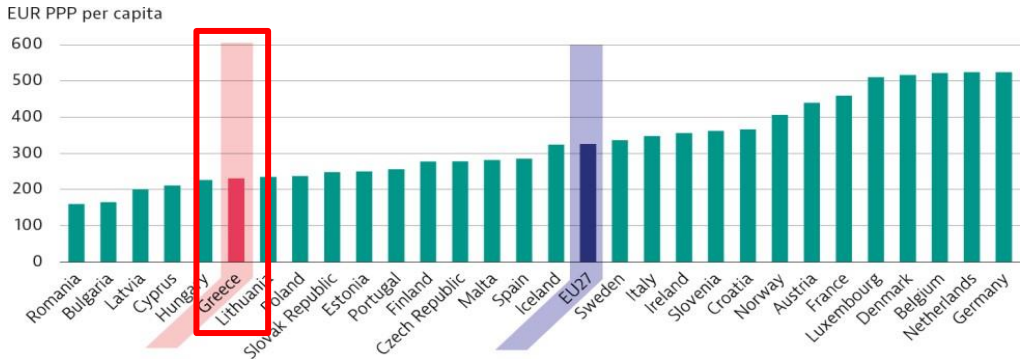
Greece GDP per capita, Source: OECD



Pharmaceutical expenditure in Greece. Source: OECD

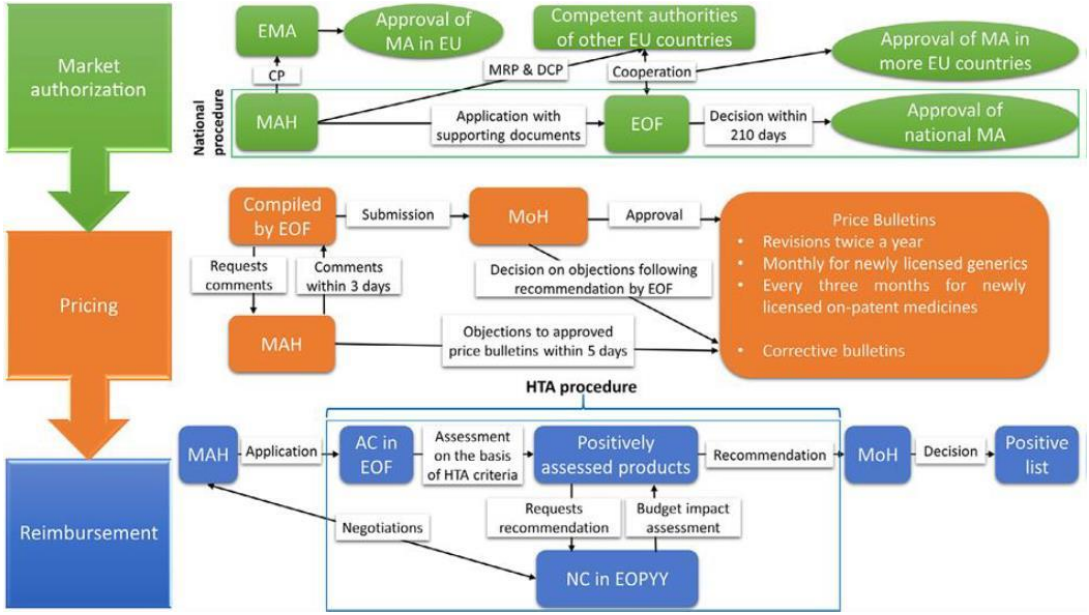


The cost of Cancer in Greece PPP expenditure on Cancer in Greece. Source: Country Cancer

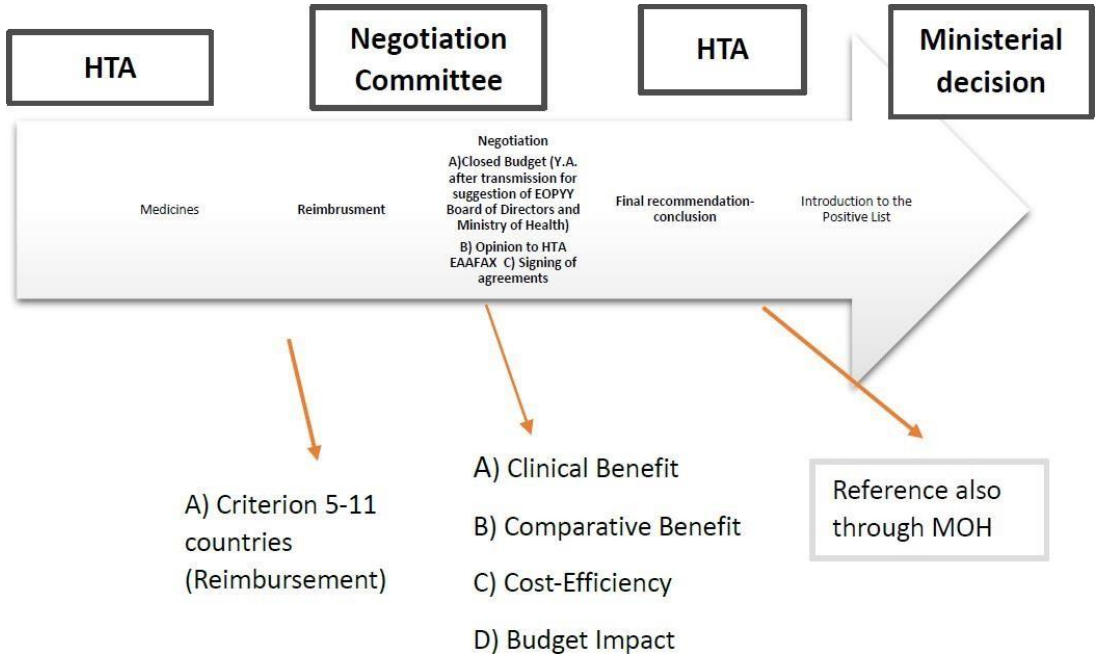


Market access landscape in Greece

The market authorization, pricing and reimbursement processes in the Greek pharmaceutical sector



HTA process in Greece



Source: John N. Yfantopoulos, Athanasios Chantzaras, Drug Policy in Greece, Value in Health Regional Issues

Why we have this delay?

Barriers:

- Clinical and epidemiological factors (Registries, Real world Data)
- Political environment in Greece and Governance structure, Political instability
- Transparent health care system
- HTA in Greece as official body
- Lack of National Cancer Plan
- Sustainability of Healthcare system
- Cost of upcoming innovative treatment

Facilitators:

- Health Insurance File
- Horizon scanning
- Electronic Pre-Approval System (S.I.P.) Σύστημα ηλεκτρονικής προέγκρισης (ΣΗΠ)
- RRF, incrising funding for the pharmaceutical sector, clinical trials invenstment
- Strong representation of innovative Pharmaceutical Industry
- Strong representation of Patient organizations

Conclusions:

This study adds a different point of view based in **European Union** health reforms and **WHO** perspectives for the Market access for the cancer.

- **Decisions more rapid**
- **Inclusion of innovative medicines in routine clinical practice**
- **Better access to all citizens**
- **Additional investments in cancer care**
- **National cancer Plan**
- **Transparency**

Proposals

Health policy:

- National cancer plan
- Biomarkers for decision making
- Decisiveness from involved bodies to make reforms
- Encouraging investment in the healthcare sector
- Optimization of HTA and Negotiation framework
- Investing in research and development
- Promoting price transparency
- Building partnerships between the public and private sectors

Scientific community:

- Education for clinicians, advocates and people impacted by Cancer
- Clinicians use tecnology to more accurately diagnose and treat diseases and deliver care
- Design effective patient access schemes more organized value oriented
- Promotion of patient-centered care
- Improving patient access to clinical trials

Technology:

- Development of e-Registries(Real world Data)
- E-patient insurance file
- Alignment with European Health data space
- Digitalization of Health system
- Treatment at home with digital tools


The End