



ENLIGHT SEEIIST July 2020.

# Improvement of Cancer Control in South- Eastern Europe and role of SEEIIST

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AROME Board Member, SEEIIST Steering Committee Member



Cancer is an increasing worldwide challenge

## New Cancer Cases Per Year

2018



~18.1 million



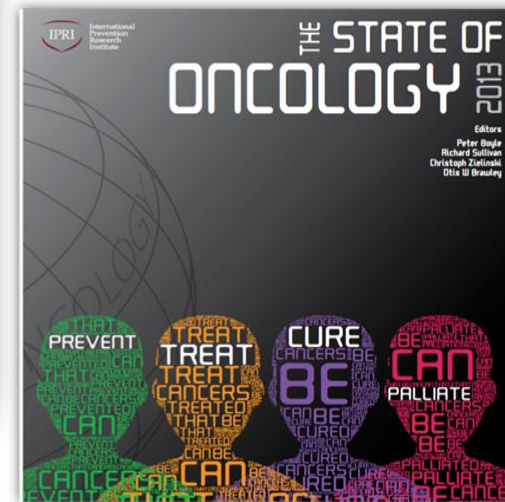
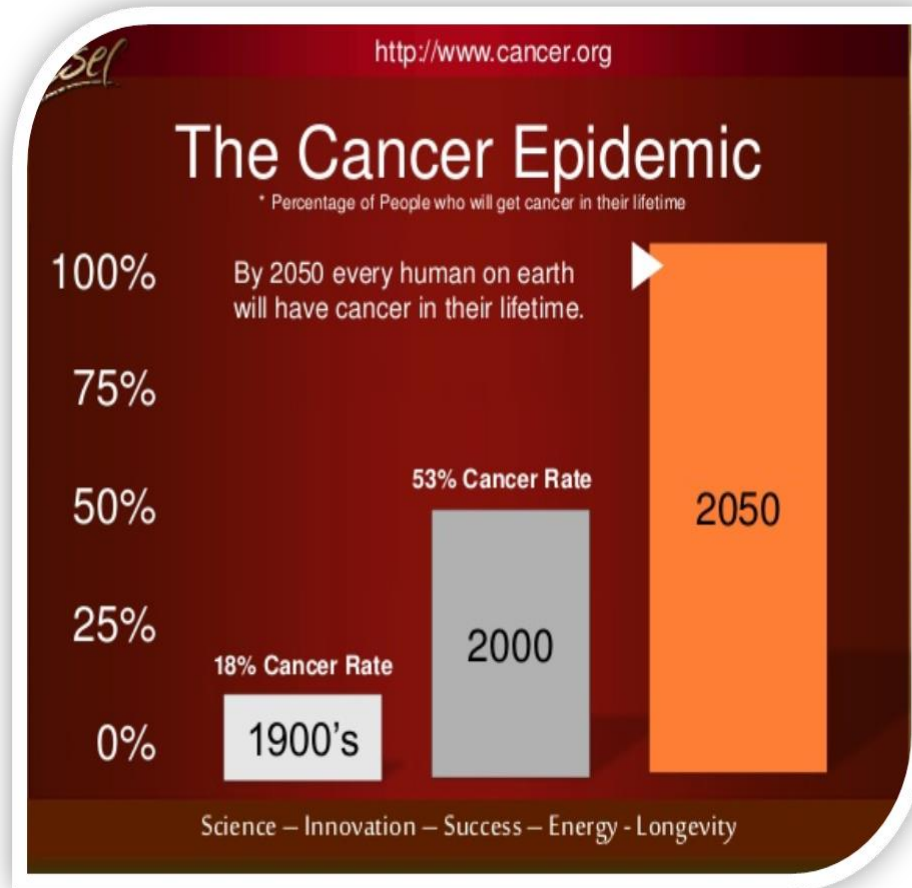
2040



Forecasted 29.5 million

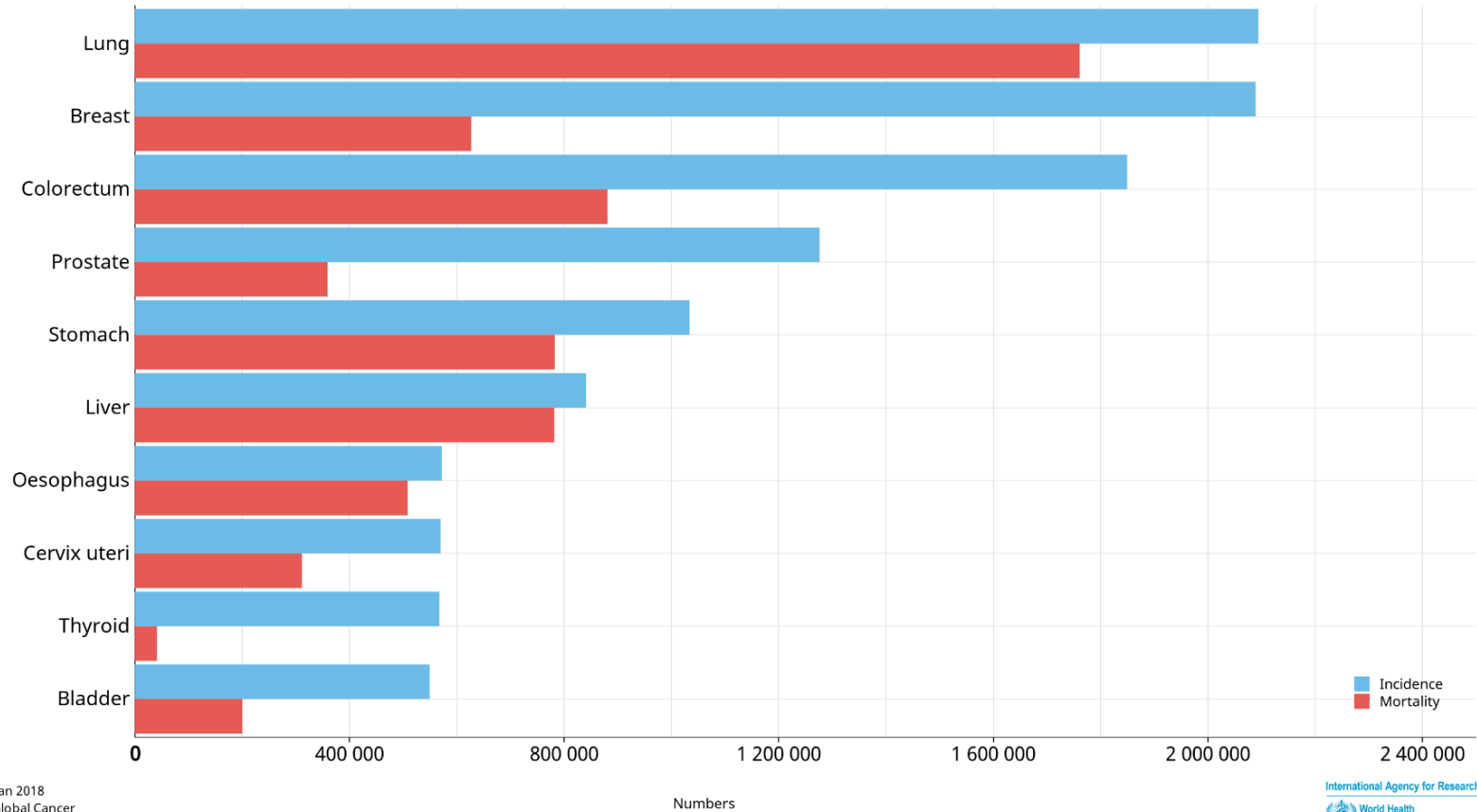
Source: World Health Organization: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C et al. GLOBOCAN 2018 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11  
<http://www.who.int/mediacentre/factsheets/fs297/en/>

# Cancer epidemiology trends



# Incidence and mortality frequency in solid tumors (both genders)

Estimated number of incident cases and deaths worldwide, both sexes, all ages



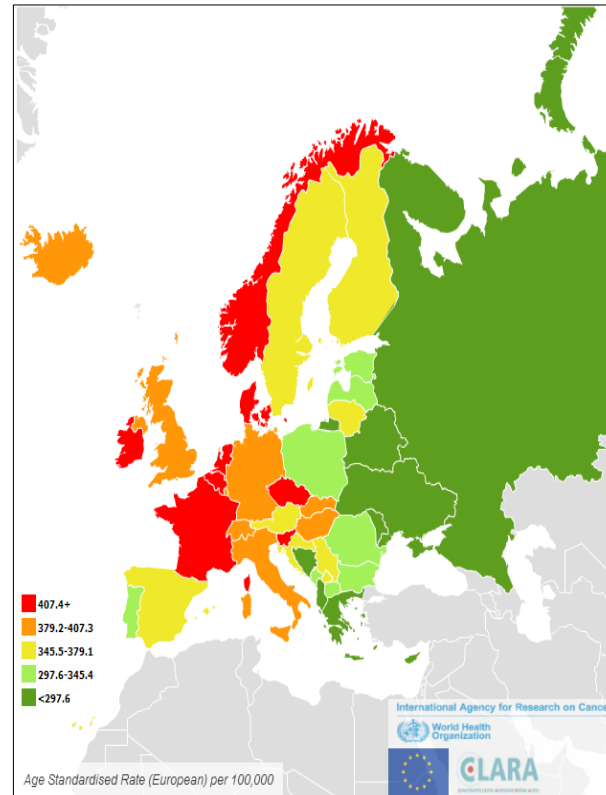
Data source: Globocan 2018  
Graph production: Global Cancer  
Observatory (<http://gco.iarc.fr>)

International Agency for Research on Cancer  
World Health Organization

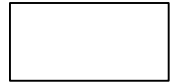
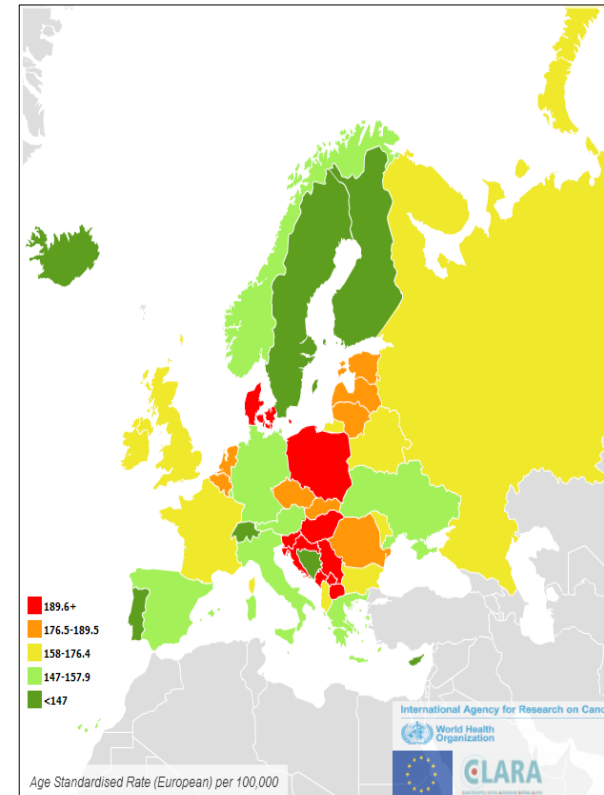
Source: GLOBOCAN 2018. Estimated cancer incidence, mortality, and prevalence worldwide in 2018.

# Cancer Incidence and mortality distribution in Europe

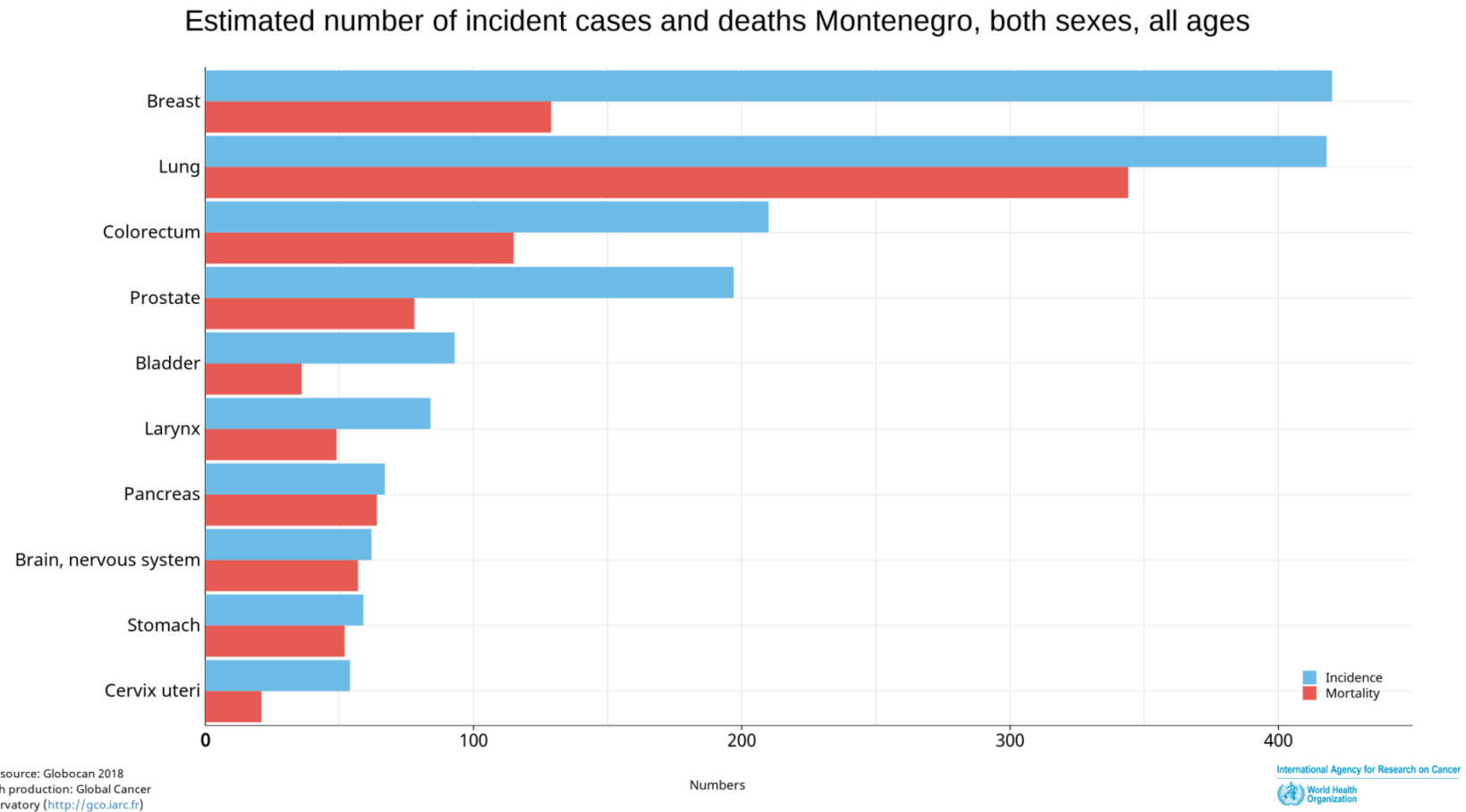
**Incidence  
(per 100,000)**



**Mortality  
(per 100,000)**

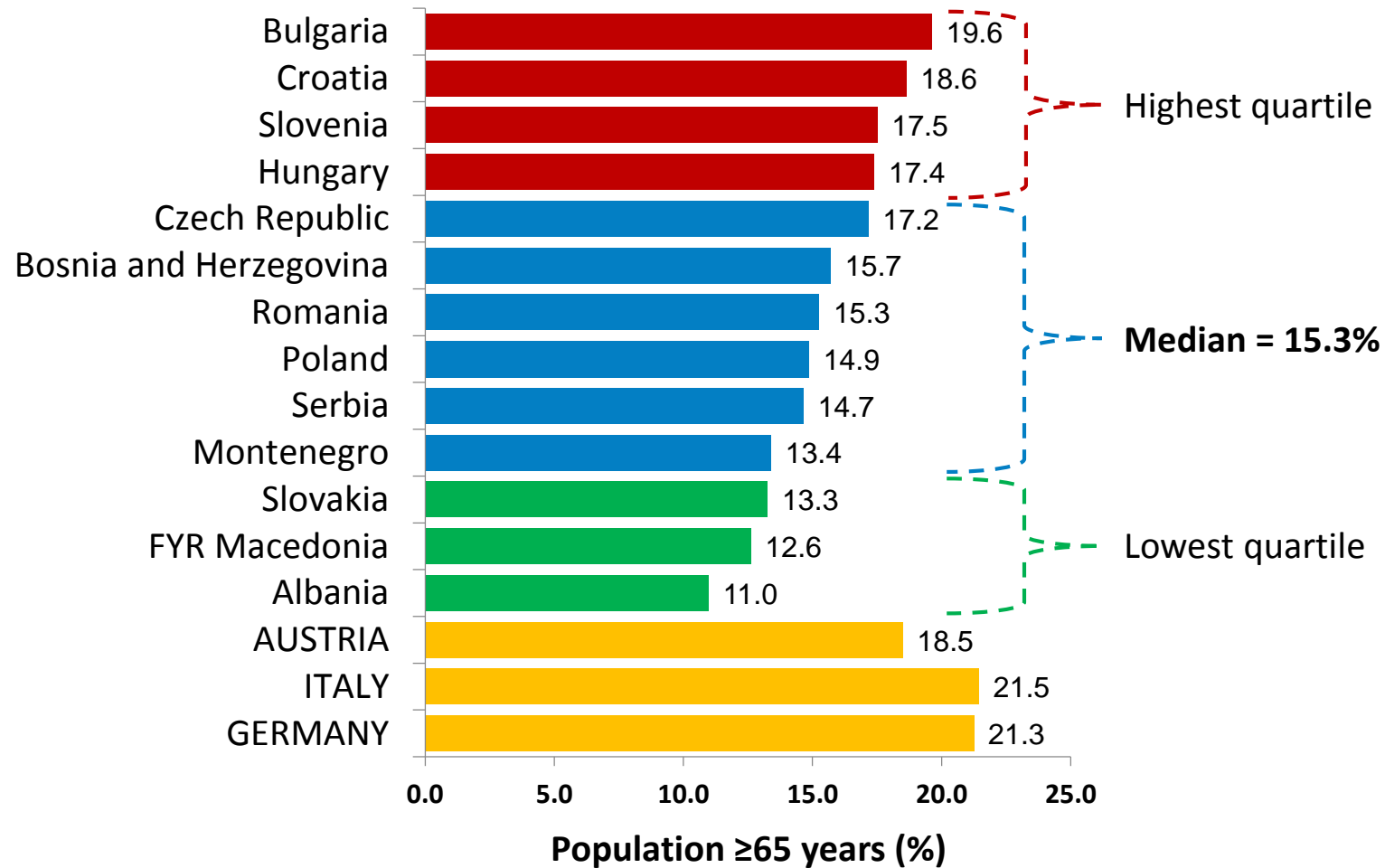


# Globocan estimation for Montenegro

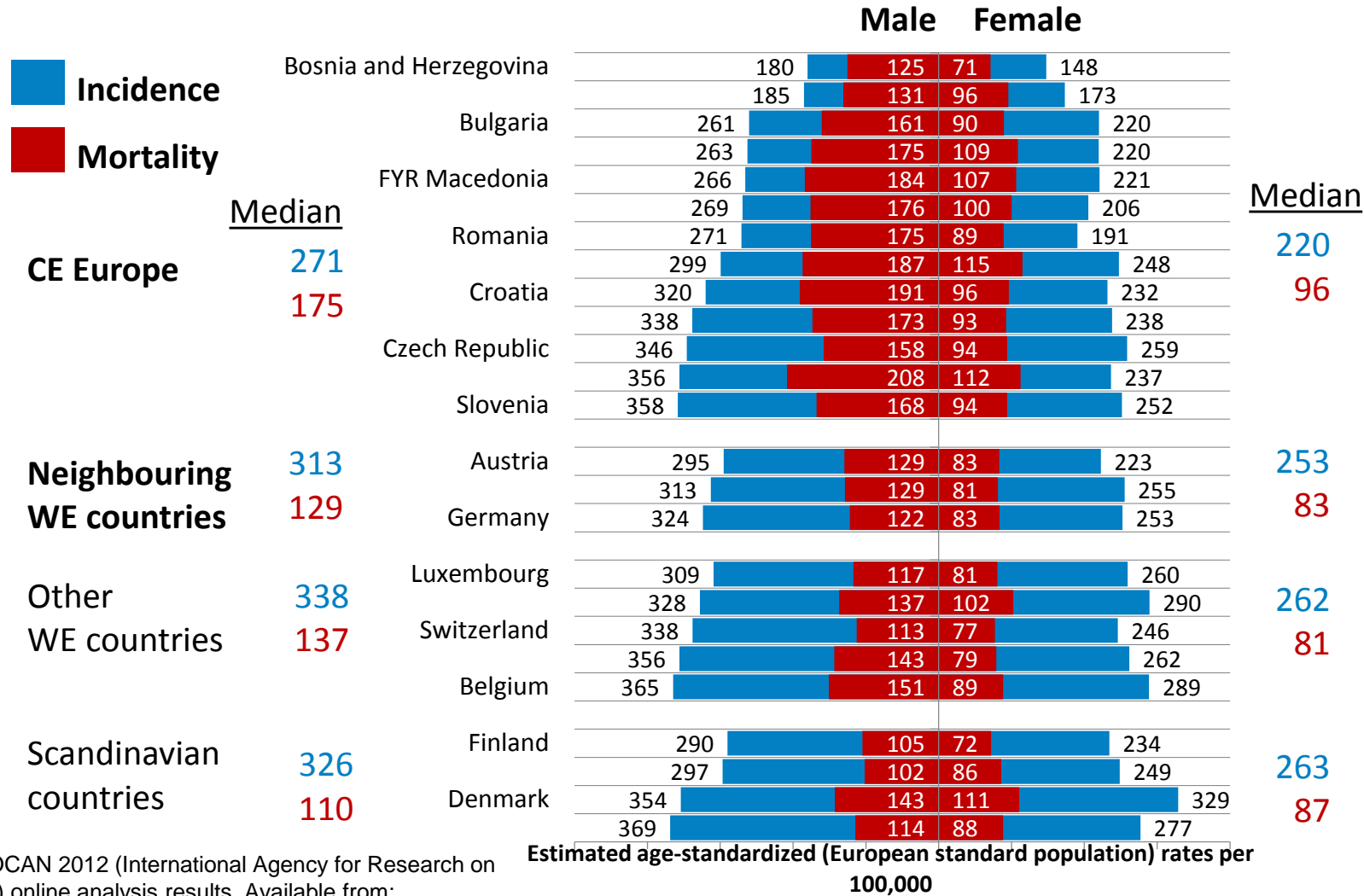


Source: GLOBOCAN 2018. Estimated cancer incidence, mortality, and prevalence worldwide in 2018

# SEEROG – Vrdoljak - facts about CEE: population ≥ 65 years



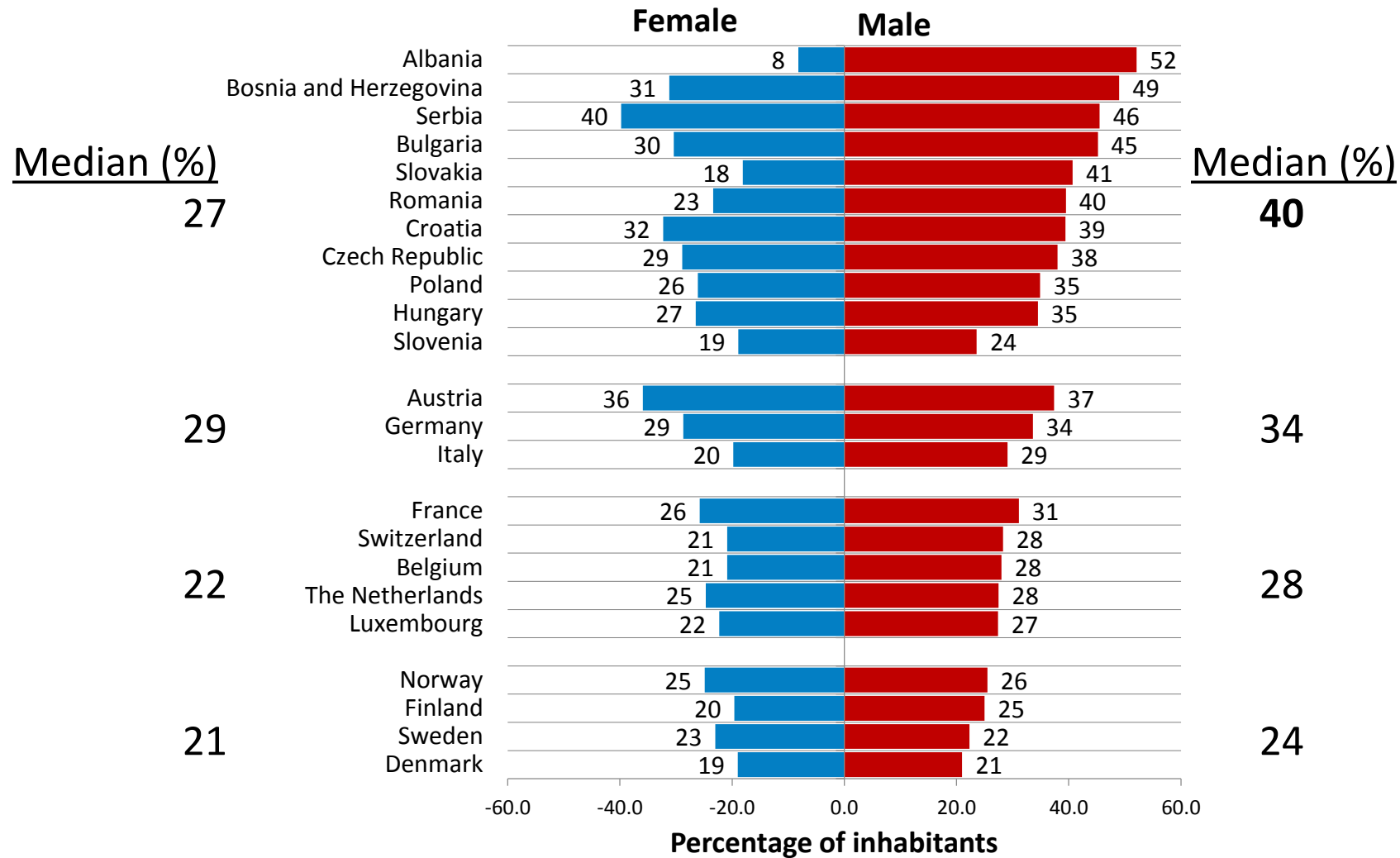
# Incidence and mortality comparison CEE, EU, Scandinavia



GLOBOCAN 2012 (International Agency for Research on Cancer) online analysis results. Available from: [http://globocan.iarc.fr/Pages/age-specific\\_table\\_sel.aspx](http://globocan.iarc.fr/Pages/age-specific_table_sel.aspx)  
 Accessed Jun 19, 2015



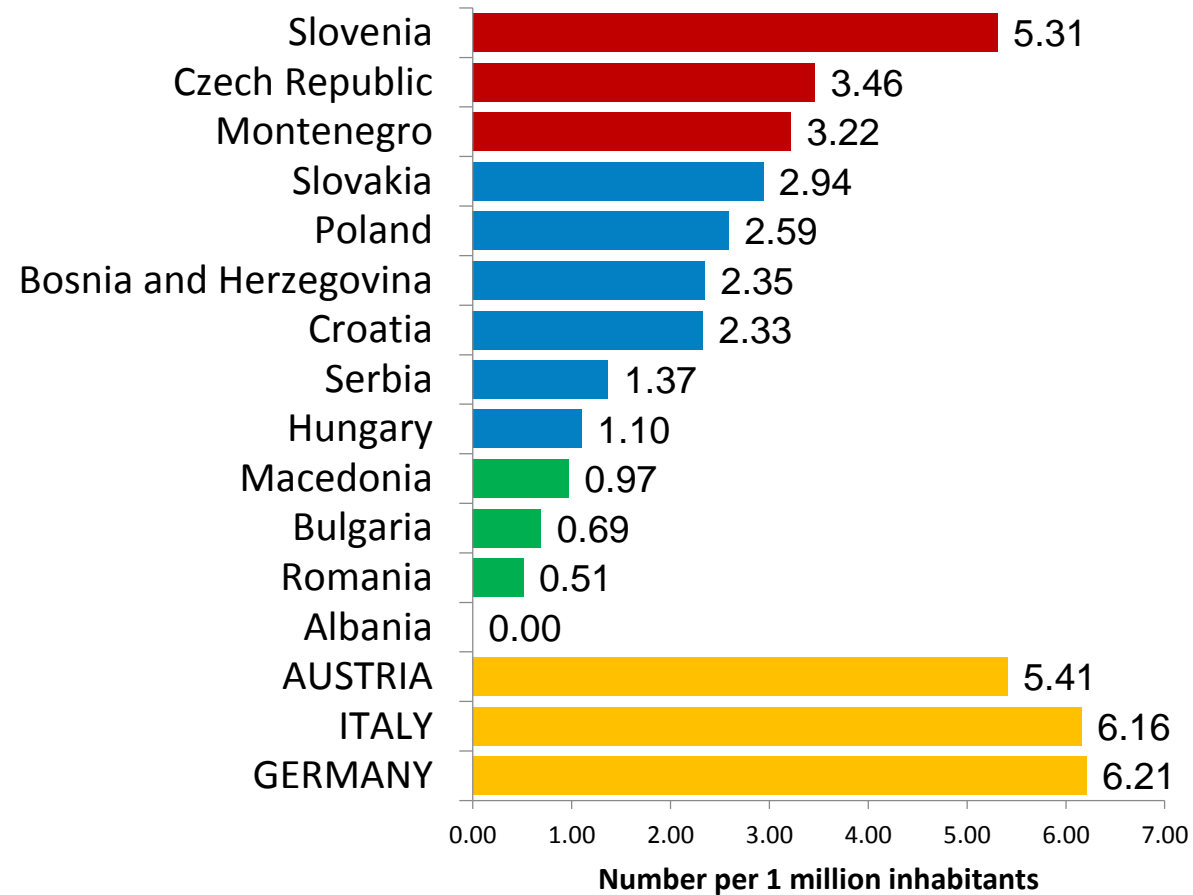
# Tobacco smoking - CEE, EU, Scandinavia



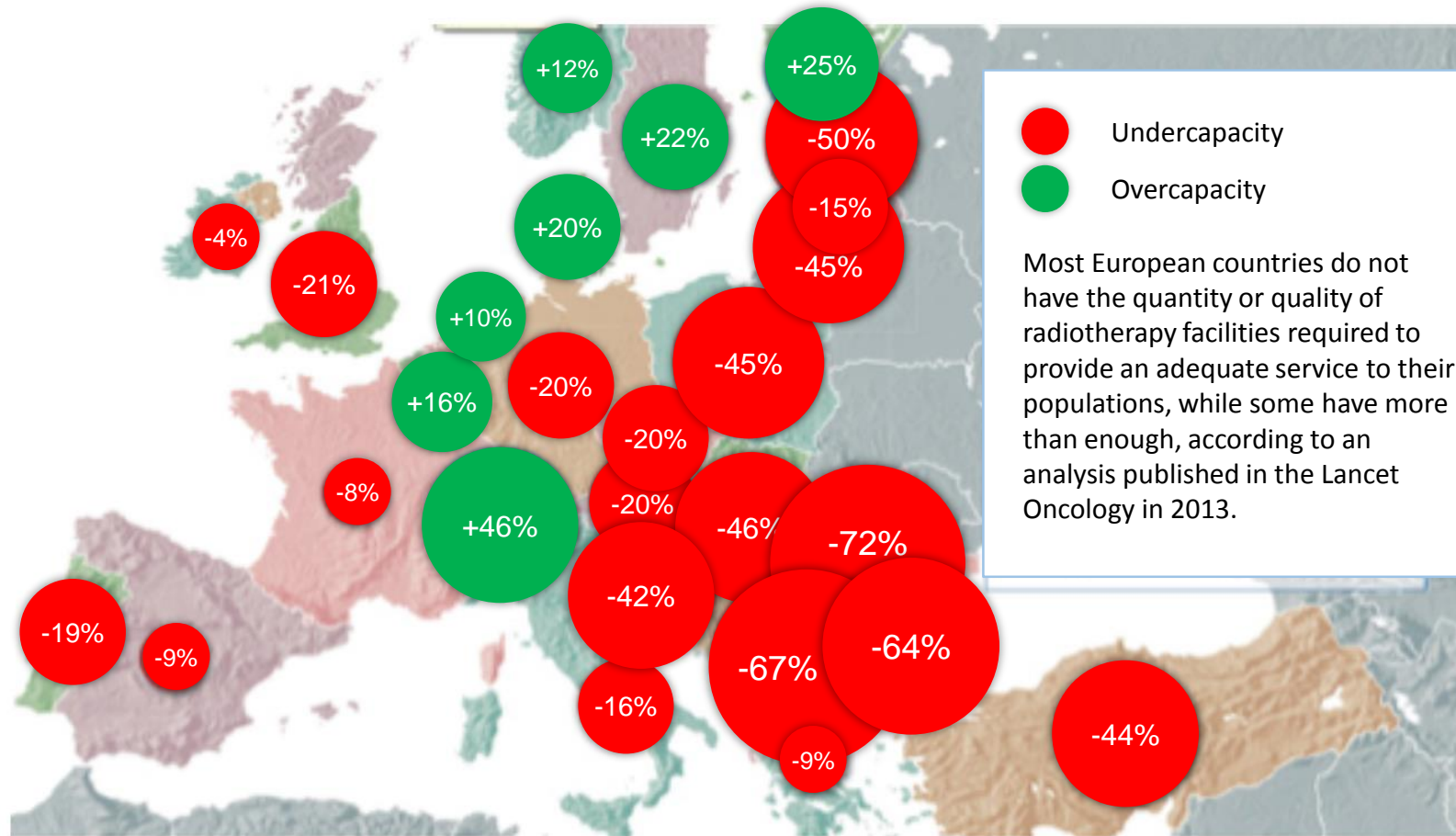
## SEEROG – places for improvement

- **Cancers with poorer prognosis diagnosed (worse cancer type distribution)**
- **Late diagnosis (worse stage distribution)**
- **Lack of true multidisciplinary work**
- **Lack of radiotherapy equipment**
- **Lack of appropriate surgery**
- **Lack of innovative drugs**
- **Lack of proper cancer plans**
- **Lack of primary and secondary cancer prevention**
- **Lack of cancer registries**
- **Lack of financial support and suboptimal spending of limited budgets**

## SEEROG Vrdoljak - Linear accelerators: per 1 million inhabitants ( 2015.)



# Radiotherapy capacity in Europe



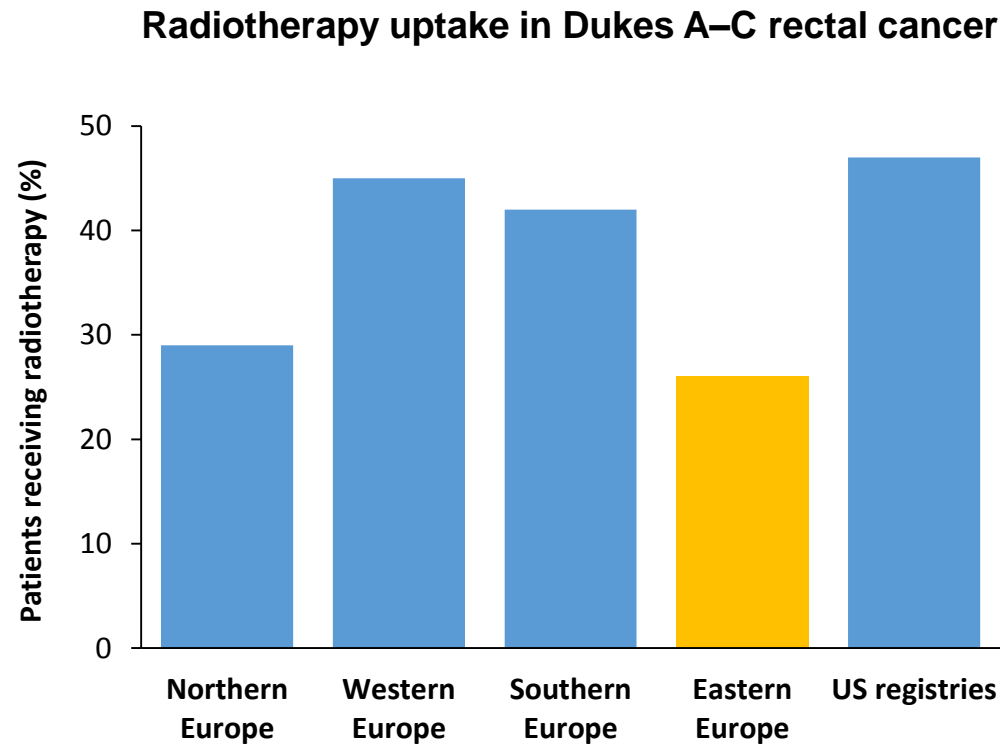
# Lancet Oncology Global Radiotherapy Commission

- Worse oncology care – local ?
  - 50 % of patients with cancer would benefit from radiotherapy
  - access to radiotherapy is low and especially that is the case in low or medium income countries
  - Investment in radiation oncology – every EUR invested in RT will be amplified by 6x



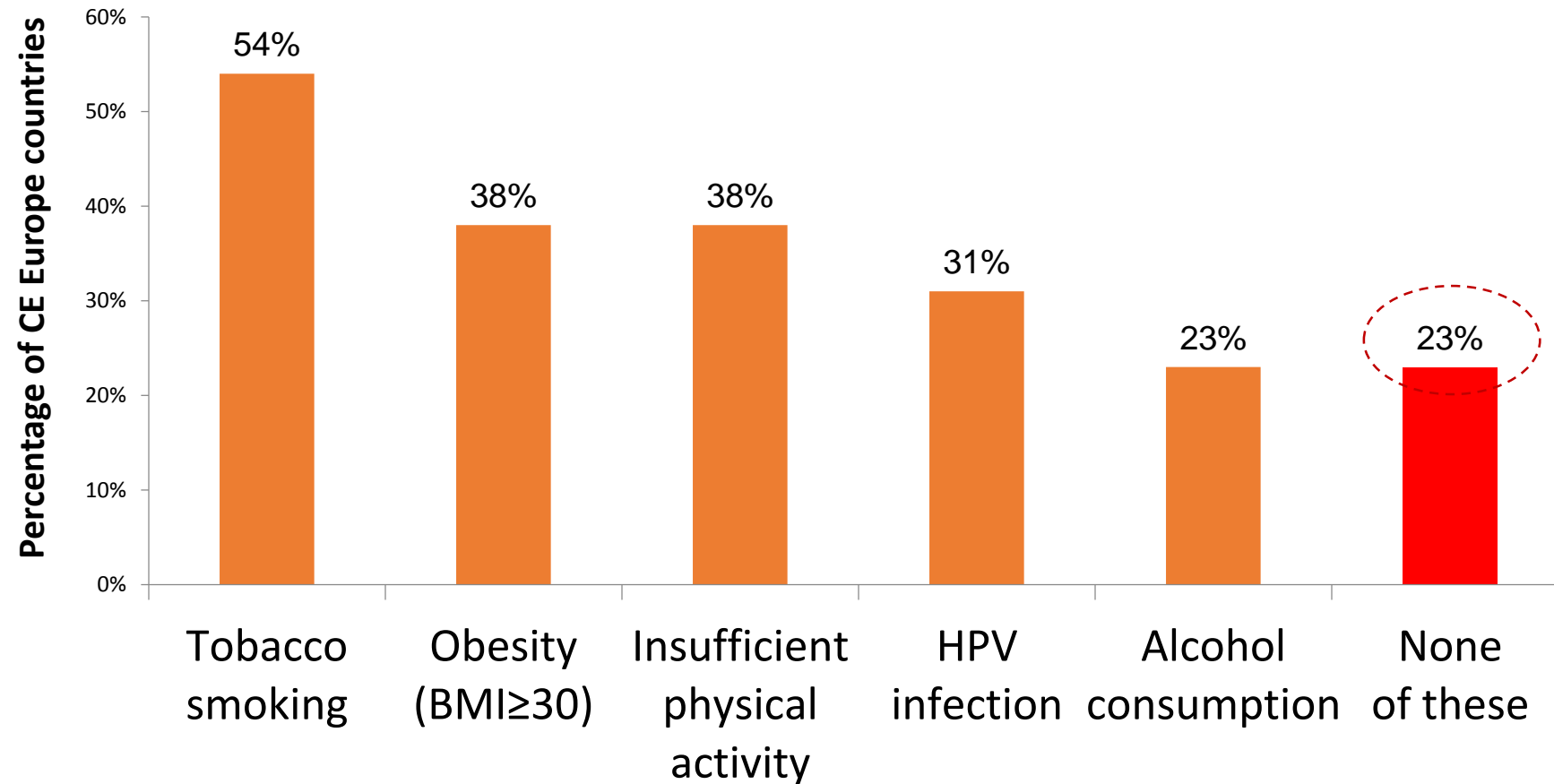
## CONCORD study: geographical variations in radiotherapy administration rates for rectal cancer

- Radiotherapy was administered least frequently for rectal cancer in Eastern Europe vs. all other regions shown



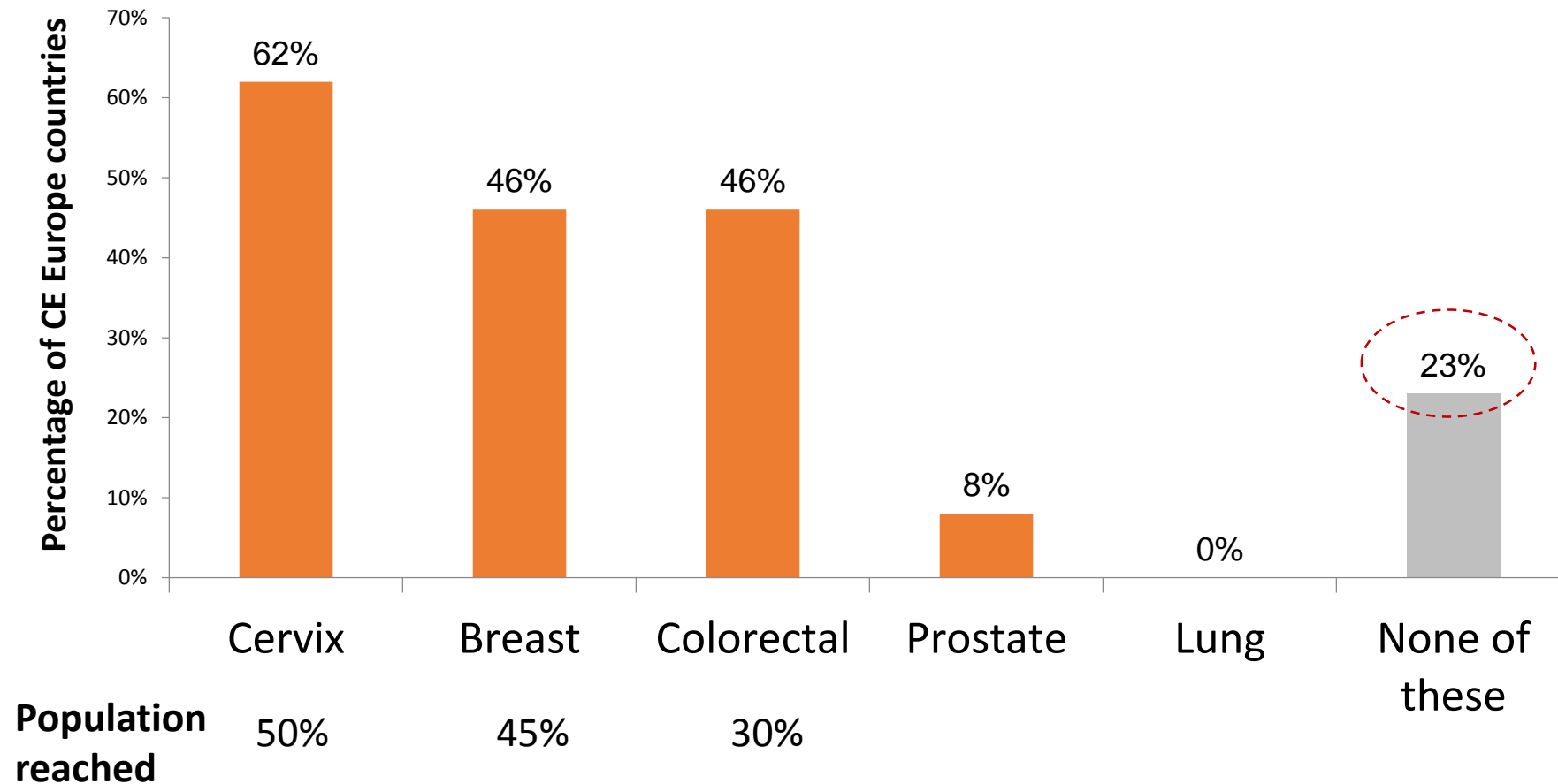
# CEOOC study : Primary prevention Targeted risk factors

## Nationwide primary prevention programmes



# CEOOC study : Secondary prevention

## Nationwide secondary prevention programmes

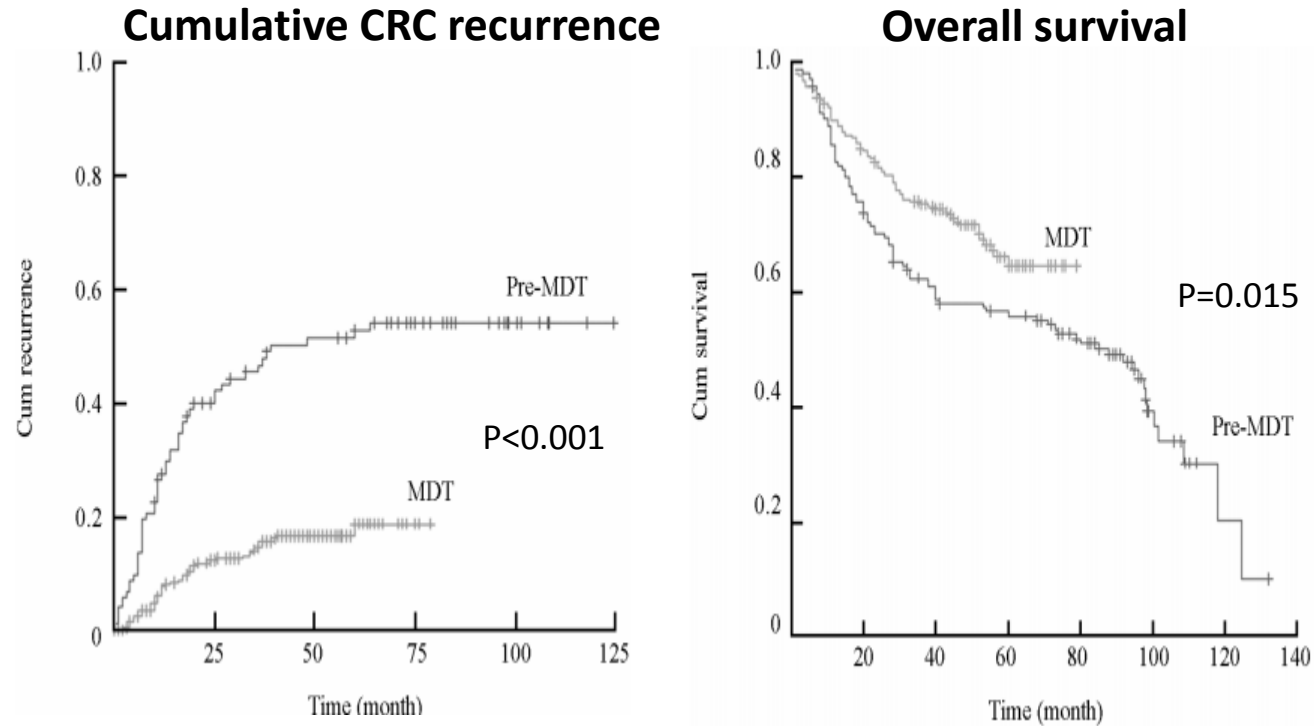




# Multidisciplinary tumor boards decisions

– better results and outcomes – make them obligatory

Outcomes before and after the introduction of an MDT for CRC



Pre-MDT, n=297  
MDT, n=298

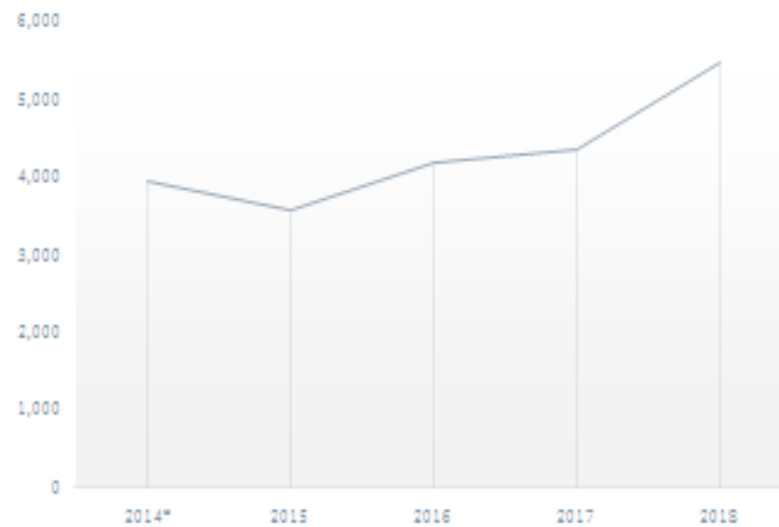
# MDT – Clinic for Oncology and Radiotherapy Podgorica

2014. 4000 decisions

2019. 7500

π

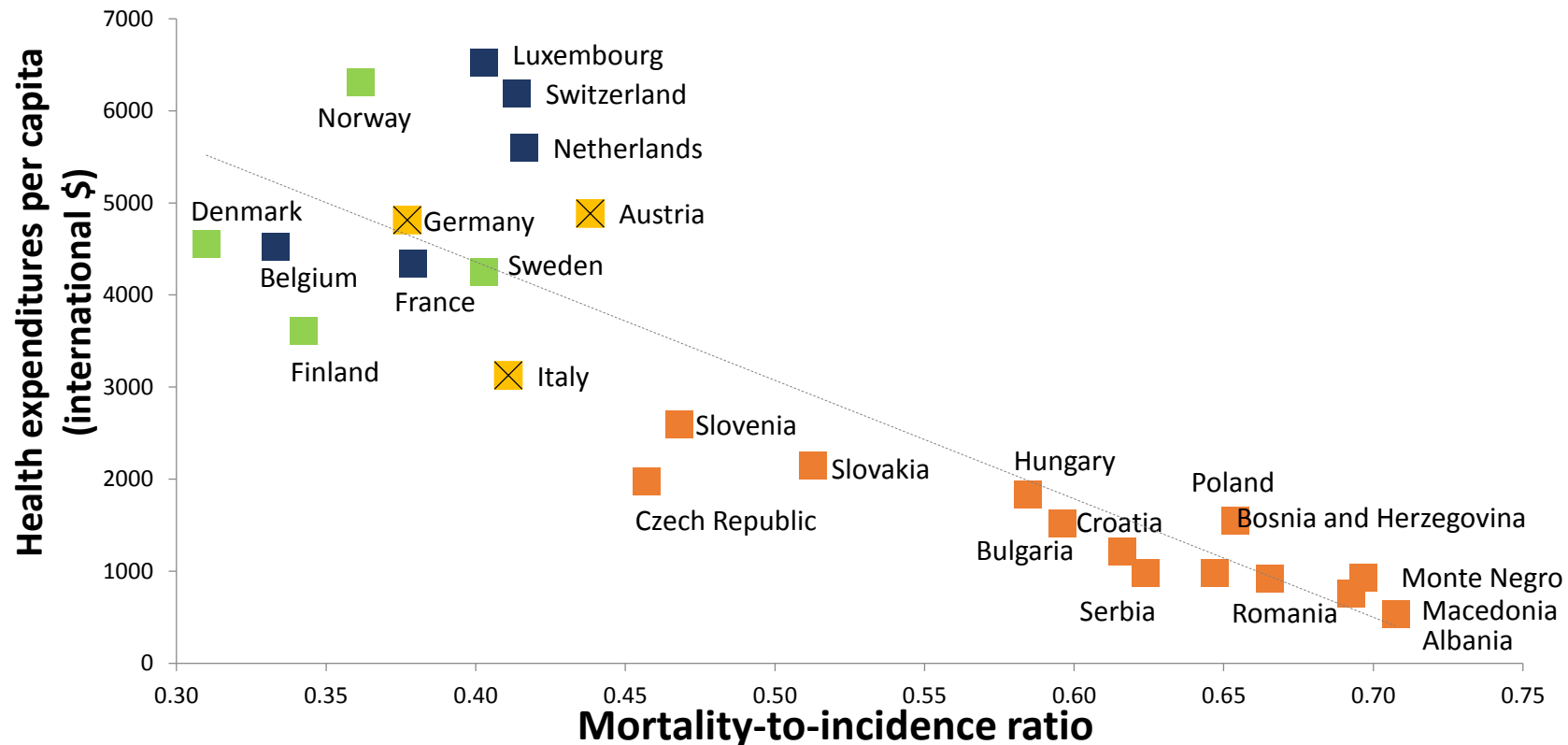
## ONKOLOŠKI MULTIDISCIPLINARNI KONZILJUMI



**Grafik 1.** *Prikazporasta ukupnog broja pregledanih pacijenata po godinama.*

# Correlations of health expenditures per capita and mortality-to-incidence ratio

- More financial and organisational investment in oncology in general – Every EUR invested in oncology is investment in health of society, in economy of countries



United Nations, Department of Economic and Social Affairs PD. World Population Prospects: The 2015 Revision. Available from: <http://esa.un.org/unpd/wpp/DVD/> Accessed Aug 23, 2015; GLOBOCAN 2012 (International Agency for Research on Cancer) online analysis results. Available from: [http://globocan.iarc.fr/Pages/age-specific\\_table\\_sel.aspx](http://globocan.iarc.fr/Pages/age-specific_table_sel.aspx) Accessed Jun 19, 2015



**AROME-ESO Oncology Consensus Conference: access to cancer care innovations in countries with limited resources. Association of Radiotherapy and Oncology of the Mediterranean Area (AROME–Paris) and European School of Oncology (ESO – Milan)**

**JBUON 2019; 24(5): 1-18**

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- *AROME and ESO have initiated joint conferences devoted to access to innovations in Oncology in the Mediterranean area*
- *recent progresses in treatment of cancer further strengthen the differences between low/middle and high-income countries*
- *calls for joint action to reduce inequities in cancer outcomes among the patients*
- 111 recommendation statements were prepared, presented, discussed and voted upon during the two consensus sessions of the meetings by 62 panelists
- Minimal requirements concerning radiotherapy are: to have access to a CT simulator, 3D treatment planning system (imaging fusion), linear accelerator with multileaf collimation and on-line electronic port vision (ideally two machines at least to insure treatment continuum), QA/QC program and dosimetry equipment, and to create or have access to one centre of reference for particular techniques (paediatrics, stereotactic radiotherapy,...)
- (expert opinion, 91 CS)  
The estimated number of radiotherapy machines is one machine per every 500 new cases of cancer according to IAEA guidelines

# Knowledge and innovation advancing oncology

TRANSACTIONS OF THE AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, VOL. 122, 2011

## CHALLENGES AND OPPORTUNITIES FACING MEDICAL EDUCATION

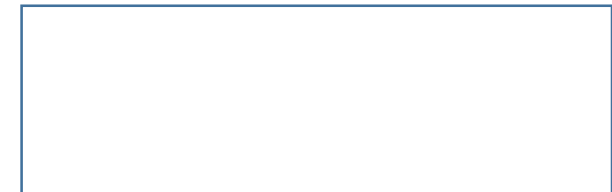
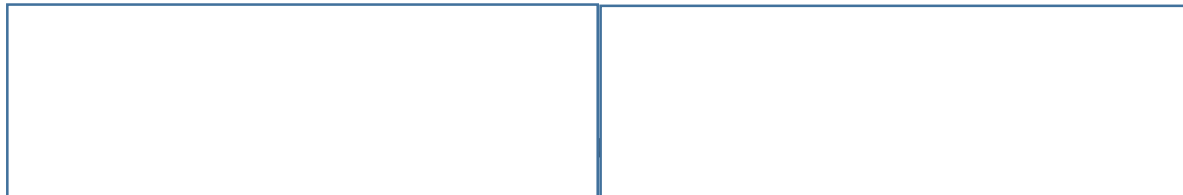
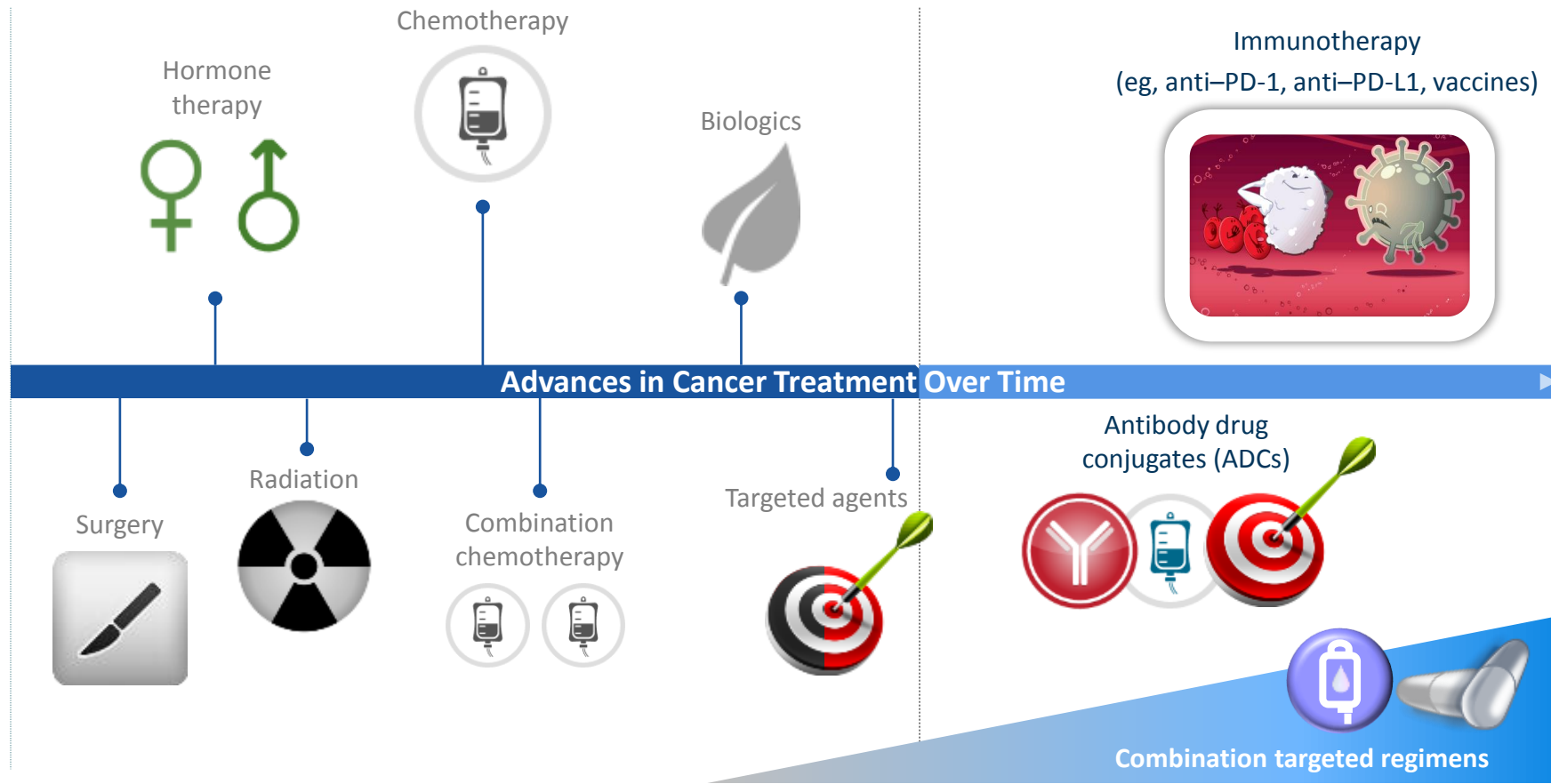
PETER DENSEN, MD

IOWA CITY, IOWA

It is estimated that the doubling time of medical knowledge in 1950 was 50 years; in 1980, 7 years; and in 2010, 3.5 years. In 2020 it is projected to be 0.2 years—just 73 days. Students who began medical school in the autumn of 2010 will experience approximately three doublings in knowledge by the time they complete the minimum length of training (7 years) needed to practice medicine. Students who graduate in 2020 will experience four doublings in knowledge. What was learned in the first 3 years of medical school will be just 6% of what is known at the end of the decade from 2010 to 2020. Knowledge is

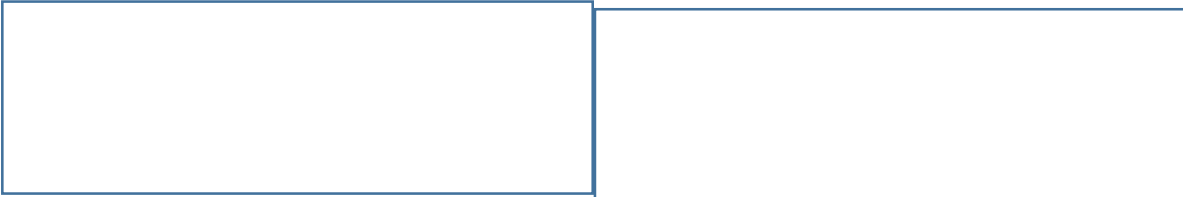
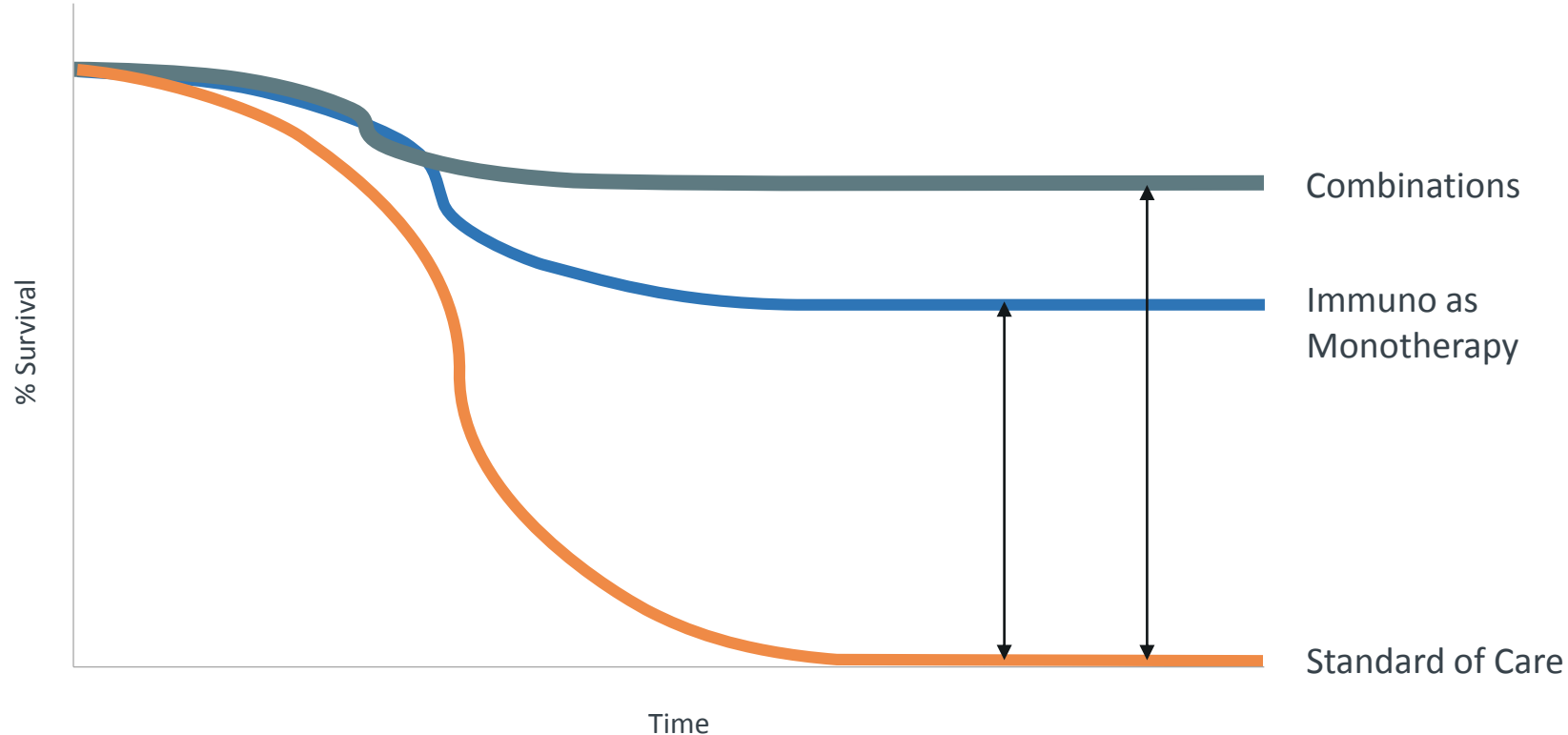


# Treatment options and future of Oncology Treatment



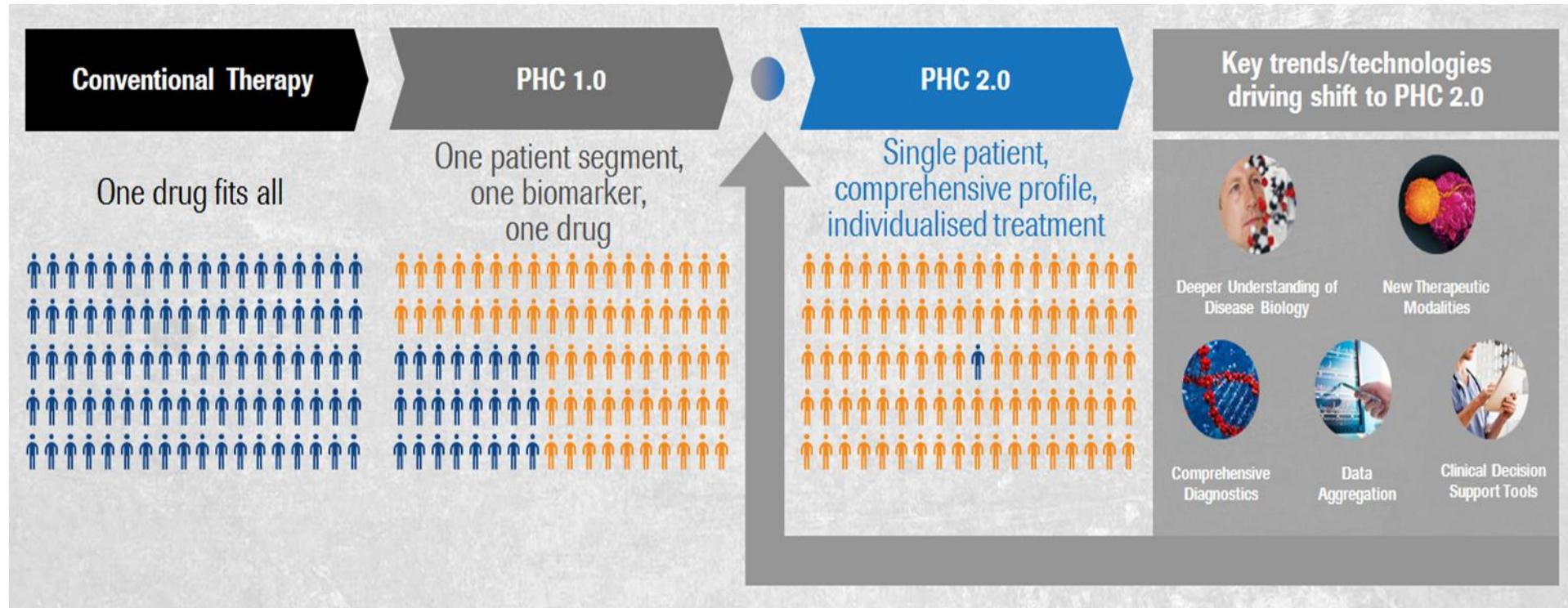
# Immunotherapy is Driving a Paradigm Shift in Treatment Efficacy Profiles Challenge Conventional Endpoints

## Extending Survival



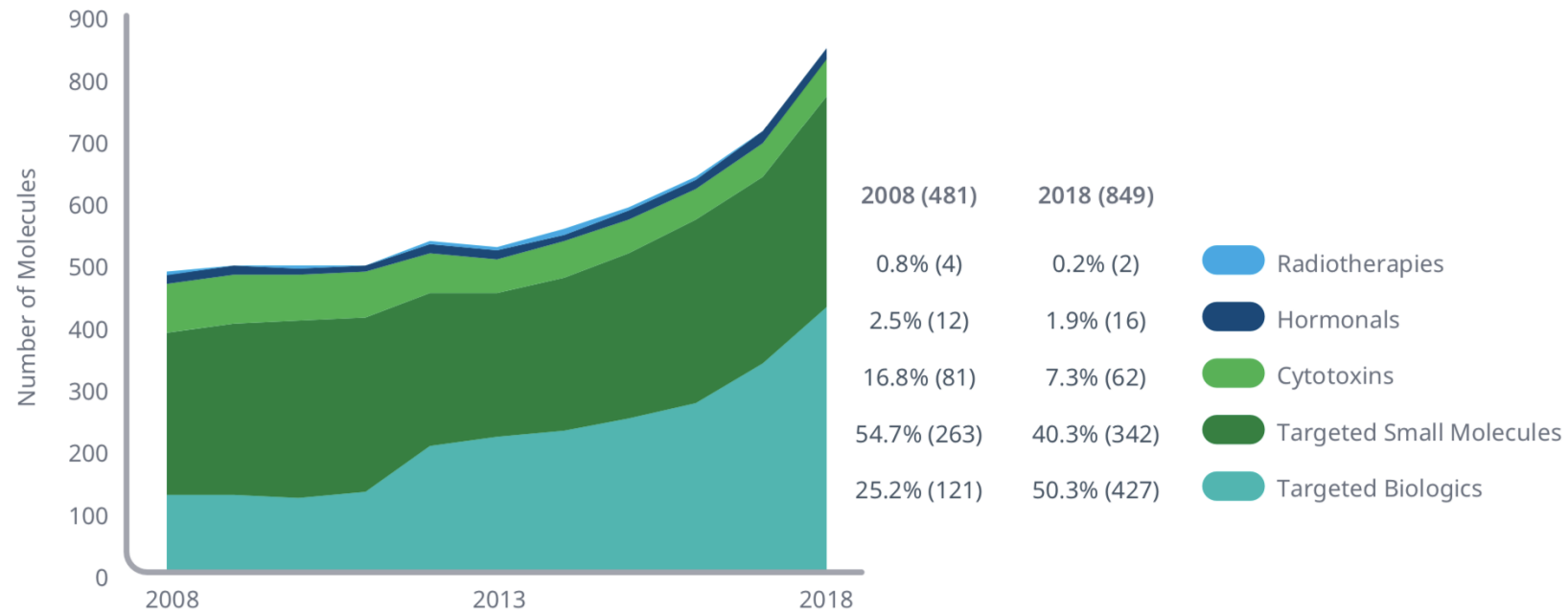


# The Evolution of the Treatment Paradigm Over Time



## The late-stage oncology pipeline included 849 molecules in 2018, up 77% since 2008, due to the increasing number of targeted therapies

Exhibit 9: The Pipeline of Late Phase Oncology Molecules, 2008–2018



Source: IQVIA Pipeline Intelligence, Dec 2018; IQVIA Institute, May 2019

# CLINIC FOR ONCOLOGY AND RADIOTHERAPY Clinical Center of Montenegro

New Clinic Opening **13. July 2010. 10 YEARS**

Treated newly patients **650 - 2017. 1760**

<b>2010.</b>	2014	2015	2016	2017*	2018
<b>18000</b>	21892	24819	23872	24723	28.396

**2019. 30.000** outpatients

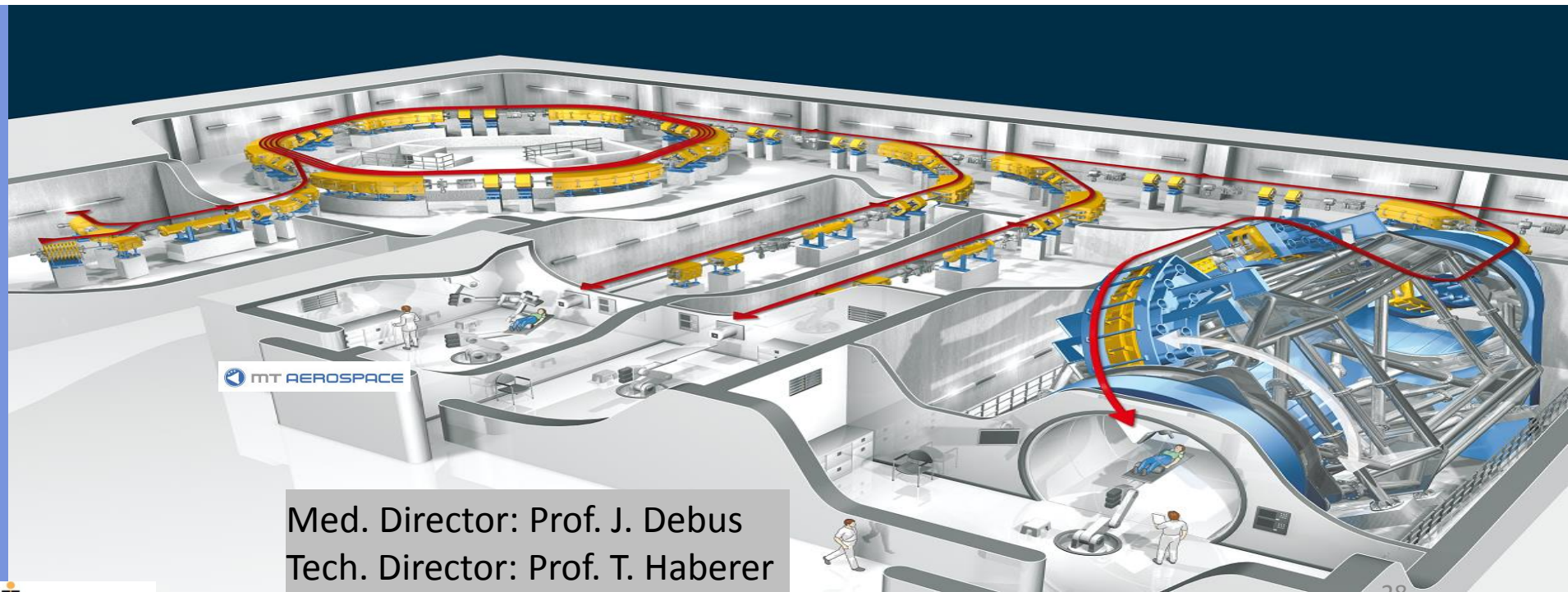
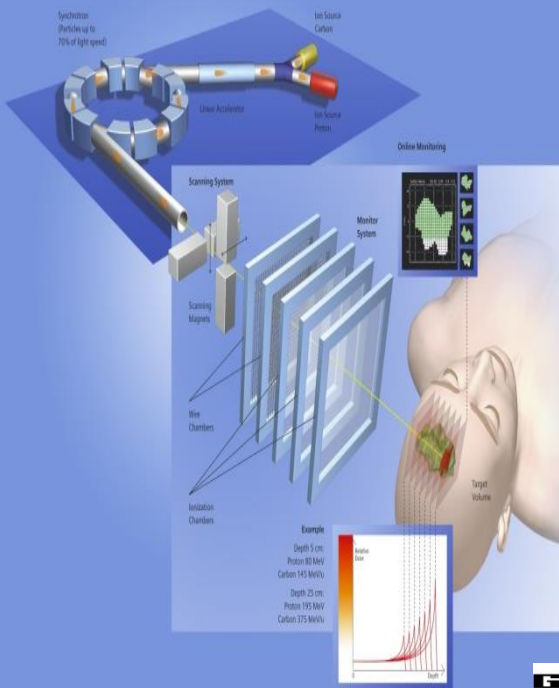
**Covid 19 first wave**  
4000 outpatients, 2600 systemic,  
210 RT 3 LINACS ONCOR Siemens ; True beam Varian , Halcyon  
Varian

**No Cov 2 infected staff or inpatients ! New wave....**



## SEEIIST: facility for tumour treatment and Biomedical Research with protons and heavier ions – CERN model ‘Science for Peace’

- increase collaboration between medicine, science, technology and industry
  - approximately 500 patients will be treated yearly (20 M. inhabitants)
    - 50 % of time dedicated to biomedical multidisciplinary research
      - 1000 researchers from SEE and outside the SEE region
        - innovative accelerator technologies
          - Prevent brain drain



Med. Director: Prof. J. Debus  
Tech. Director: Prof. T. Haberer