



# Competency- based education of RTTs in Romania: changing the paradigm to prepare the future

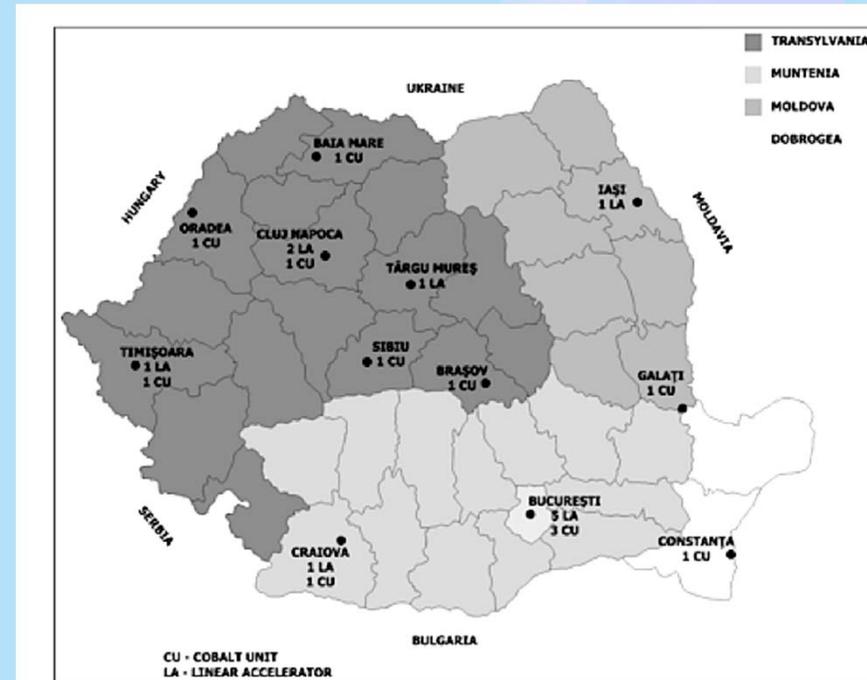
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# Brief history of RT centers in Romania

- The network of public radiotherapy centers was established between 1970-1987 taking into account:
  - Epidemiologic criteria
  - Geographic criteria
  - **16 RT centers** generally equipped with ROKUS M cobalt machines of soviet production
  - **1998-2000**- reequipment of this centers with 10 new Co machines, and 6 LINACS, brachithery units, dosimetry equipment
  - 2009- Oncology Institute Cluj 1 new modern RT Chain (LINAC, CT scanner, planning system)
  - **2010**- 3 new LINACS in Bucharest
  - 2013, 2 LINACS Oncology Regional Institute Iasi
  - **Actually we have only 12 functional RT centers in public sistem with 16 LINACS and 3 Co**
- PRIVATE RT CENTERS- 7 centers (6 LINACS, 1 Tomotherapy)
  - 3 Bucharest, 1 Brasov , 1 Sibiu, 1 Cluj, 1 Timisoara



2015- 19, 8 Mil. inhabitants-  
 Public 19 MV units  
 Private 7 MV units

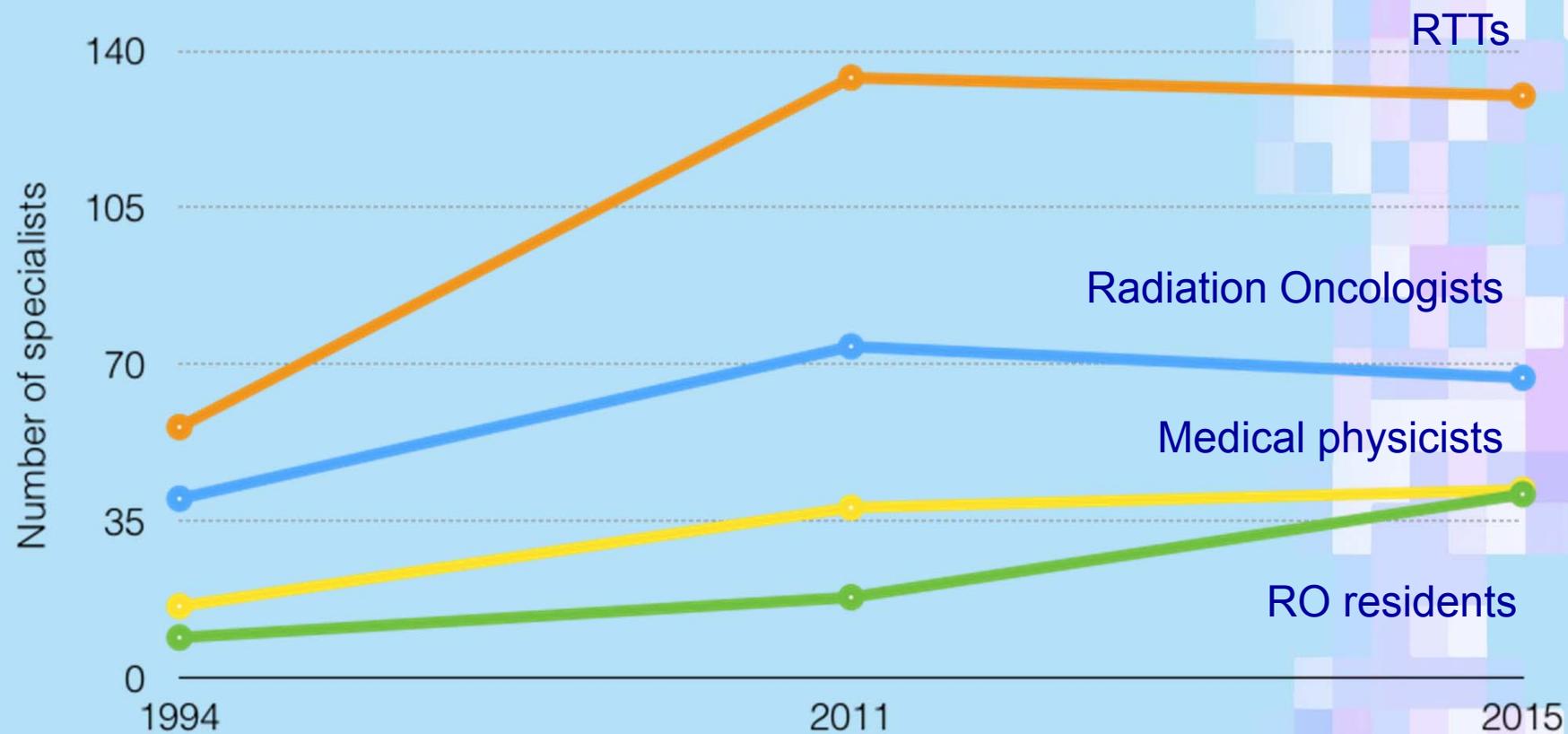
# RT in Romania vs international standards



- International standard: >65% of cancer patients need RT during their disease
- Romania:
  - 1994: 42.297 new cancer patients
    - Megavoltage RT- 7.000= **16,5%**
  - 2011: 72.000 new cancer patients,
    - Megavoltage RT-19.490= **39,7%**
  - 2015: 73.500 new cancer patients,
    - Megavoltage RT-17.159= **23,5% !!**
  - Optimal RT utilisation rate for Romania- **52%**

*Eduardo Rosenblatt , Michael Barton, <sup>†</sup>, William Mackillop, Elena Fidarova , Lisbeth Cordero , Joel Yarney , Gerard Lim , Anthony Abad , Valentin Cernea , Suzana Stojanovic-Rundic , Primoz Stojan , Lotfi Kobachi , Aldo Quarneti, Optimal radiotherapy utilisation rate in developing countries: An IAEA study. Radiother Oncol. Elsevier; 2015 Jul;116(1):35–7.*

# Radiotherapy Romania: workforce evolution



# Status of RTTs formation in Romania



- Extremely heterogeneous
  - UMF Cluj the **only** university with a bachelor degree program - 3 years 180 ECTS (ARACIS accreditation 2016)
  - Post-secondary schools, some allow entrance without the student having passed the final examinations – **baccalaureate!!**
  - Very frequently the practice is of “on the job training”

# Prerequisites for curriculum review at UMF Cluj



- Revision for the RT curriculum had taken place in the context of:
  - Major technological advances in radiotherapy over the last decades
  - Shortage of good formed RTT's able to cope this challenges
  - Development of technical infrastructure in Romania: 6 RT centers have to be retrofitted by the end of 2018
- Aim:
  - Building on a comprehensive and well qualified practitioner
  - Acquiring adequate skills:
    - Technical
    - Clinical
    - Psychosocial
    - Ethical
    - Team work
  - Standardization of Romanian training system according to EU practices
  - Continuing training!!

# Guidelines used to improve RTT' training



- ESTRO vision 2020:

“Every cancer patient in Europe, will have access to state of the art radiotherapy, as part of a multidisciplinary approach where treatment is individualised for the specific patient’s cancer, taking account of the patient’s personal circumstances”

- ESTRO guidelines:

1. Pötter R, Eriksen JG, Beavis AW, Coffey M, Verfaillie C, Leer JW, et al. *Competencies in radiation oncology: a new approach for education and training of professionals for Radiotherapy and Oncology in Europe. Radiother Oncol. 2012 Apr;103(1):1–4.*
2. Valentini V, Bourhis J, Hollywood D. *ESTRO 2012 strategy meeting: vision for radiation oncology. Radiother Oncol. 2012 Apr;103(1):99–102.*
3. Eriksen JG, Beavis AW, Coffey MA, Leer JWH, Magrini SM, Benstead K, et al. *The updated ESTRO core curricula 2011 for clinicians, medical physicists and RTTs in radiotherapy/radiation oncology. Radiotherapy and Oncology. 2012 Apr;103(1):103–8.*

- The IAEA CORE Curriculum: A handbook for the education of radiation therapists (RTTs), training course series 58.

# UMF Cluj Curriculum Modifications 2016



- 180 ECTS, allocated over 3 years of study
- Explicit subjects for radiation oncology – 22 (ECTS) >50% practical work
  - 1st year - basic sciences, but also specific (radiology/radiotherapy) disciplines that sum up 14 ECTS
  - 2nd year - specific subjects 48 ECTS
  - 3rd year - Specific subjects 51 ECTS

# Continuous medical education for RTTs



- Formal postgraduate education
- Structured (inter)departmental education programmes
  - Practical Training Course for RTTs- sustained by UMF Cluj yearly from 2005 (last in April 2017)
- ESTRO school activities
- Continuing professional development
  - Journal clubs
  - Writing groups
  - Critical incident analysis
  - Case presentation/analysis

# Training development - perspectives



- Increasing the number of credits for radiotherapy at bachelor degree
- Launching a 2 year Master's program for RTT's
- Launching a doctoral program in order to have qualified trainers among the technicians
- The development of a “VERT” center
- Cconstraints:
  - Limited number of seats (30/year) due to limited technical infrastructure
  - The current academic staff which is now insufficient



## Discussion/conclusions

- **Therapeutic radiographers** are at the forefront of cancer assistance, playing a vital role in providing high quality radiotherapy services
- **The development of technical infrastructure** of radiotherapy departments in Romania requires adapting the educational offer to the needs of the labor market. RTT's must have knowledge and practical abilities to adapt to a complex work environment.
- At the **University of Medicine and Pharmacy in Cluj Napoca** there is a study program of **180 ECTS** that has been modernized starting with academic year 2016 to include an increased number of courses and practical activities dedicated to radiotherapy.
- **A master degree program for RTTs** is scheduled from the academic year 2017-2018
- It is so far the **only University in Romania** that offers such a program of study. UMF Cluj take the **leadership role** to extend such programs to other universities.