



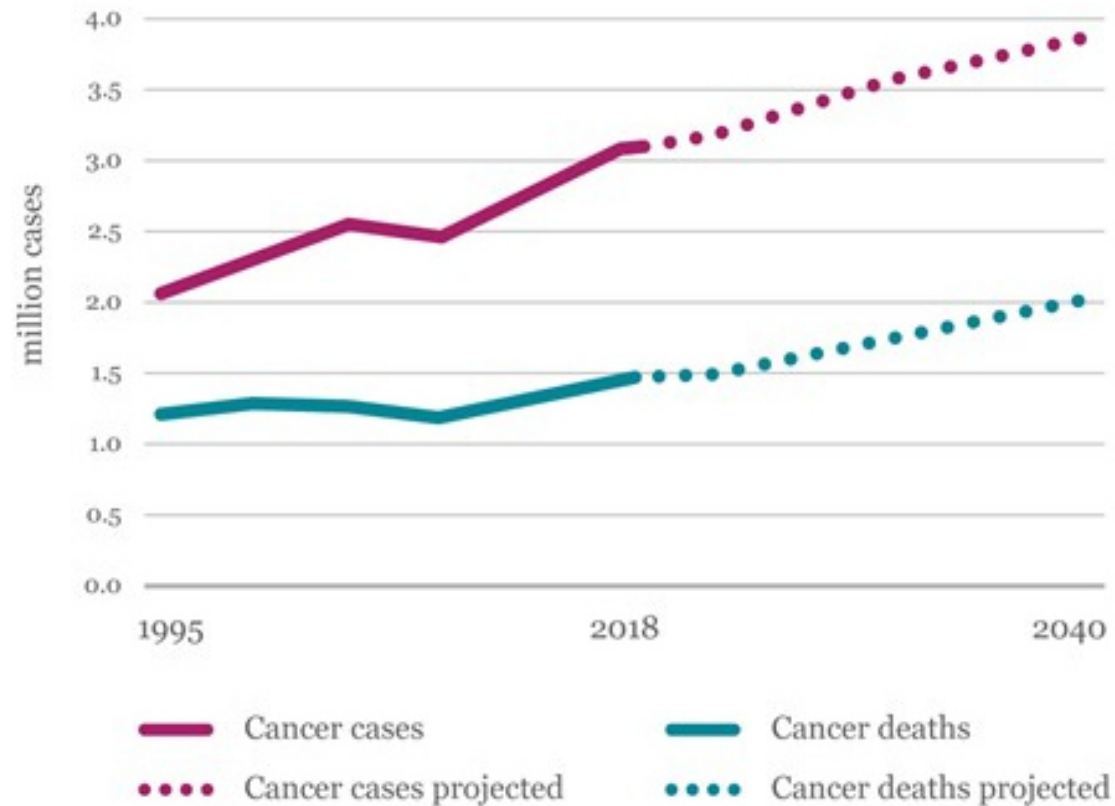
BACK TO THE FUTURE: EDUCATION AND INNOVATION

Jesper Grau Eriksen

Professor, Dept. Experimental Clinical Oncology, Aarhus University Hospital

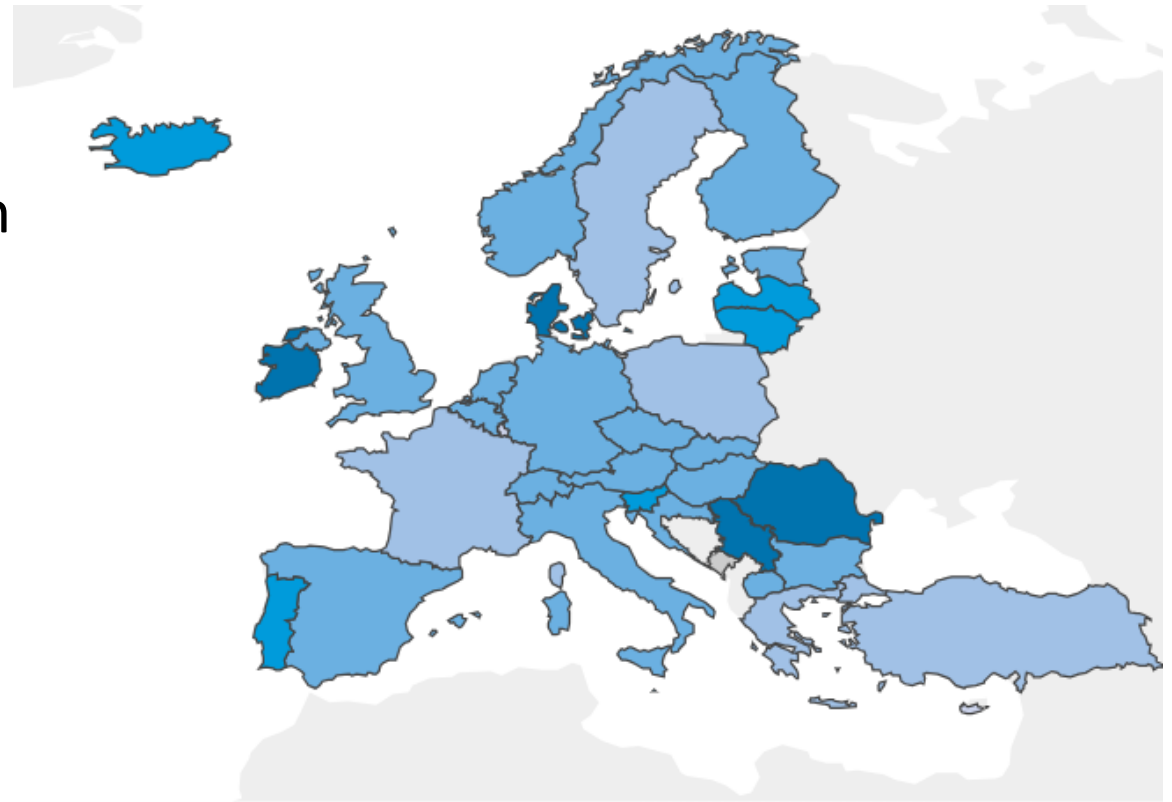
Director, ESTRO School

21% new cancer cases in Europe by 2040



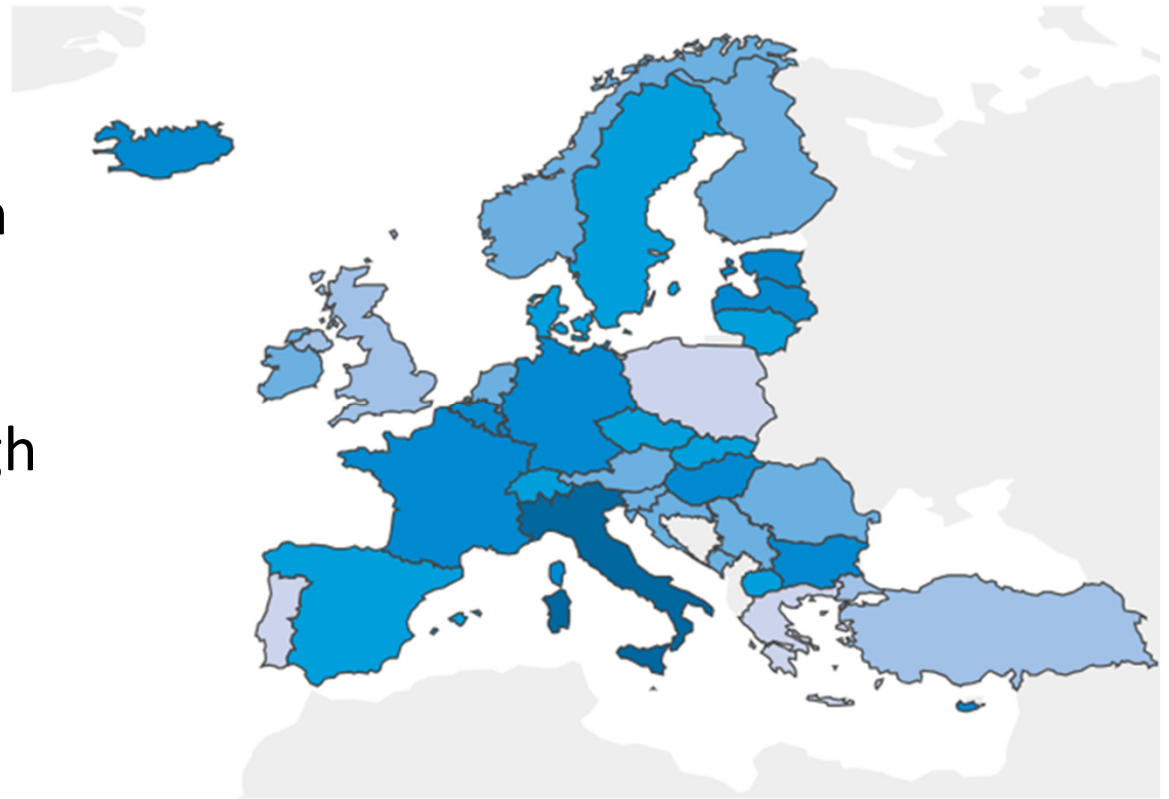
Shortage of 230.000 doctors in Europe

- 13% of the doctors needed
- Reasons are many and depends on
 - regional issues
 - political issues



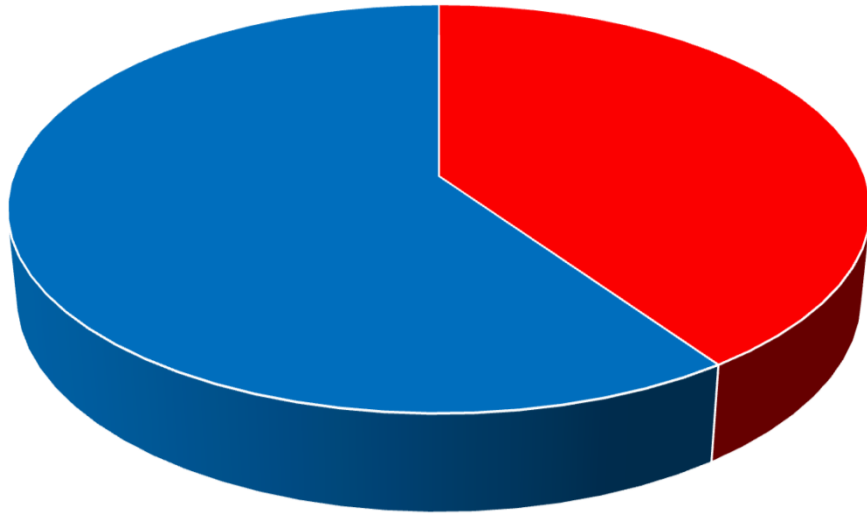
Shortage of 230.000 doctors in Europe

- 13% of the doctors needed
- Reasons are many and depends on
 - regional issues
 - political issues
- Fraction of doctors >55 years is high
 - 55% in Italy
 - 47% in France
 - 48% in Estonia

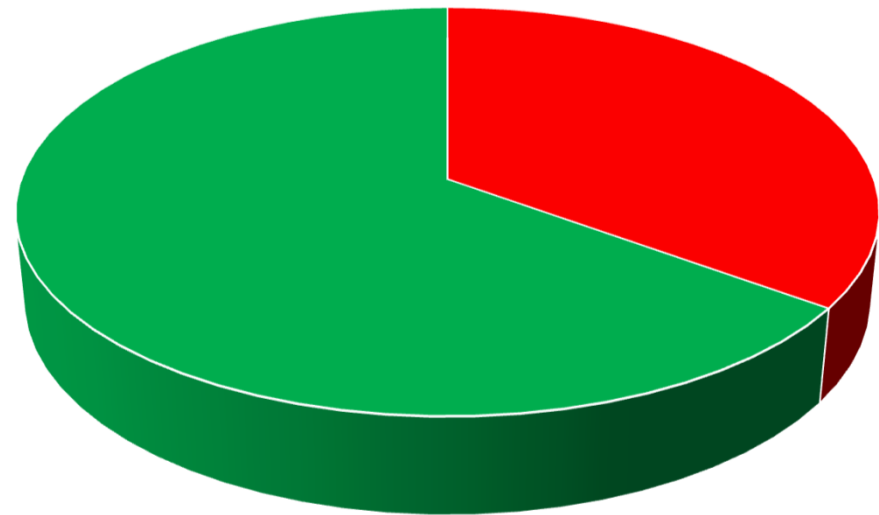


More (and more complex) patients in a time of shortage

340 French residents
60% responded
44% burnout syndrome



400 Italian residents
28% responded
35% burnout syndrome



New attitudes to work-life balance



Postgraduate education is under pressure

More cancer cases

Lack of doctors

More complex treatment

Work-life balance



Time for education is at stake

Competency-based education

Shown to you on a one-to-one basis

Observed on a one-to-one basis

Courses,
books,
instructions



Evaluated on a
one-to-one basis
Exams

Competency-based education

**Courses,
books,
instructions**



Aquiring Knowledge?

Medical School lecture hall – Budapest 1909



Competency-based education

Shown to you on a one-to-one basis

Observed on a one-to-one basis



Aquiring skills?



Shadowing the surgeon



Teaching contouring
in Uttar Pradesh



Assisting in positioning

Competency-based education



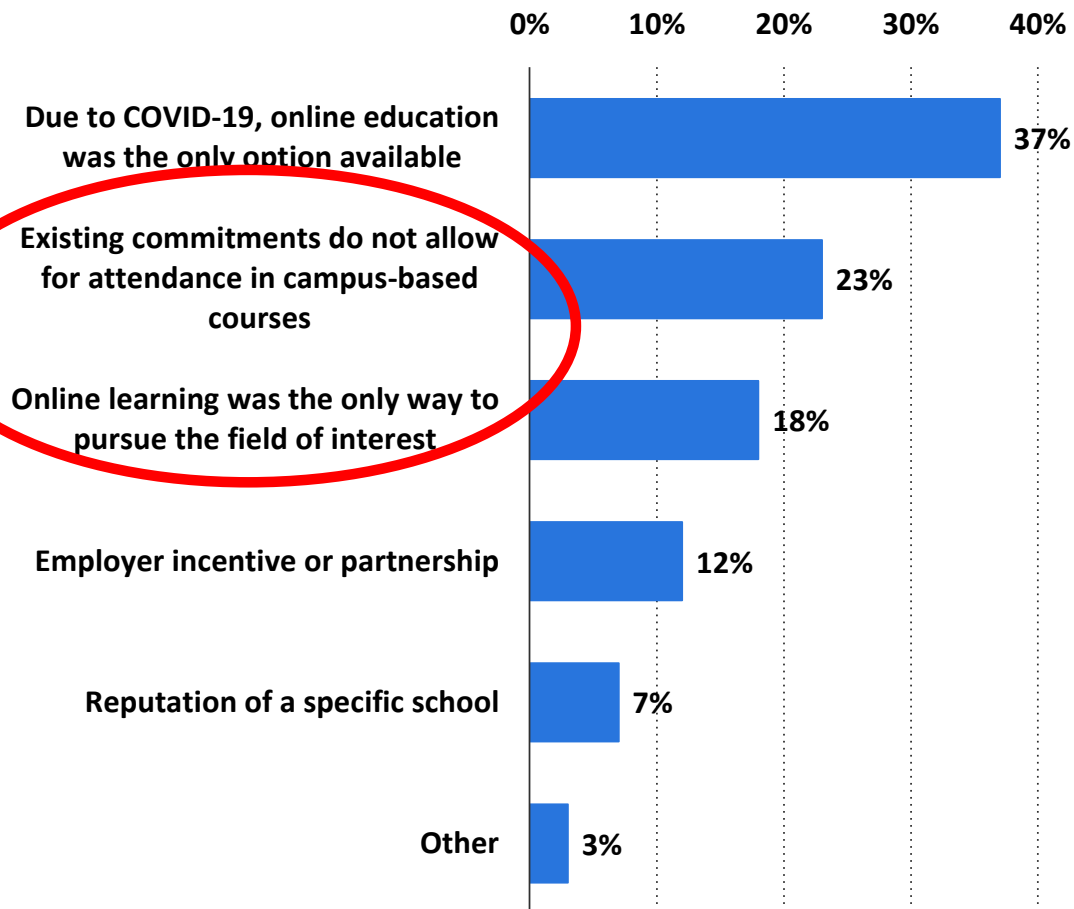
**Evaluated on a
one-to-one basis
Exams**

Exams



**TO
THE FUTURE** TM

Digital as a supplementary to live



Most common reasons for choosing online versus on-campus learning options according to 1800 online students in the United States in 2020

Digital as a supplementary to live



Live

Digital

Learning Experience

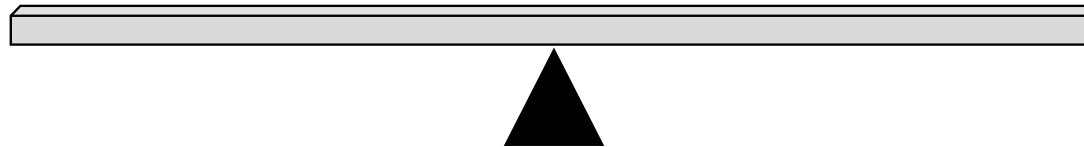
'Atmosphere'

Social

Learning Experience

Breadth

Convenient

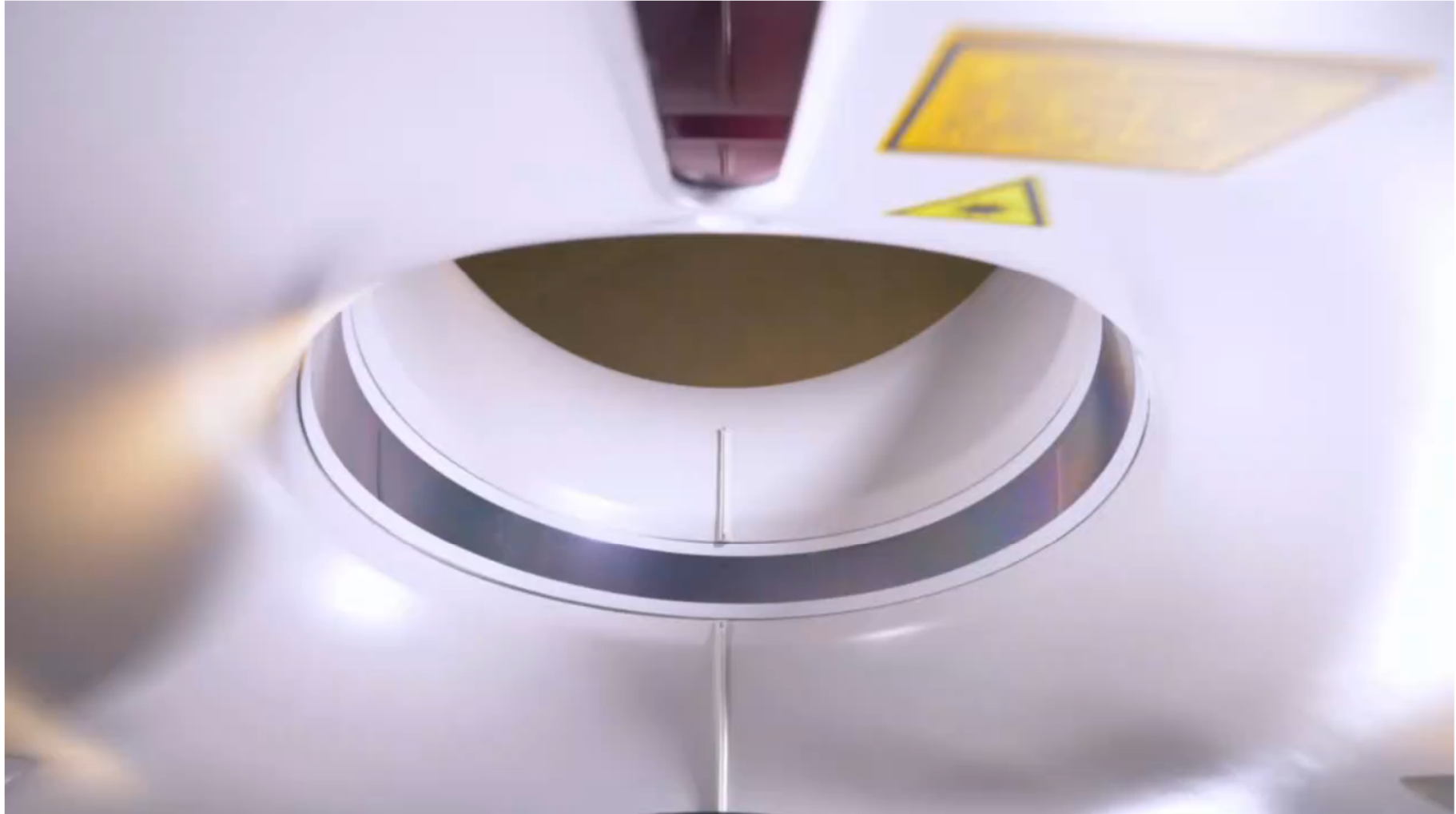


Appealing online education



Zoom fatigue





Excerpts from the University of Melbourne Master of Cancer Sciences: Thanks to Professor David Kok

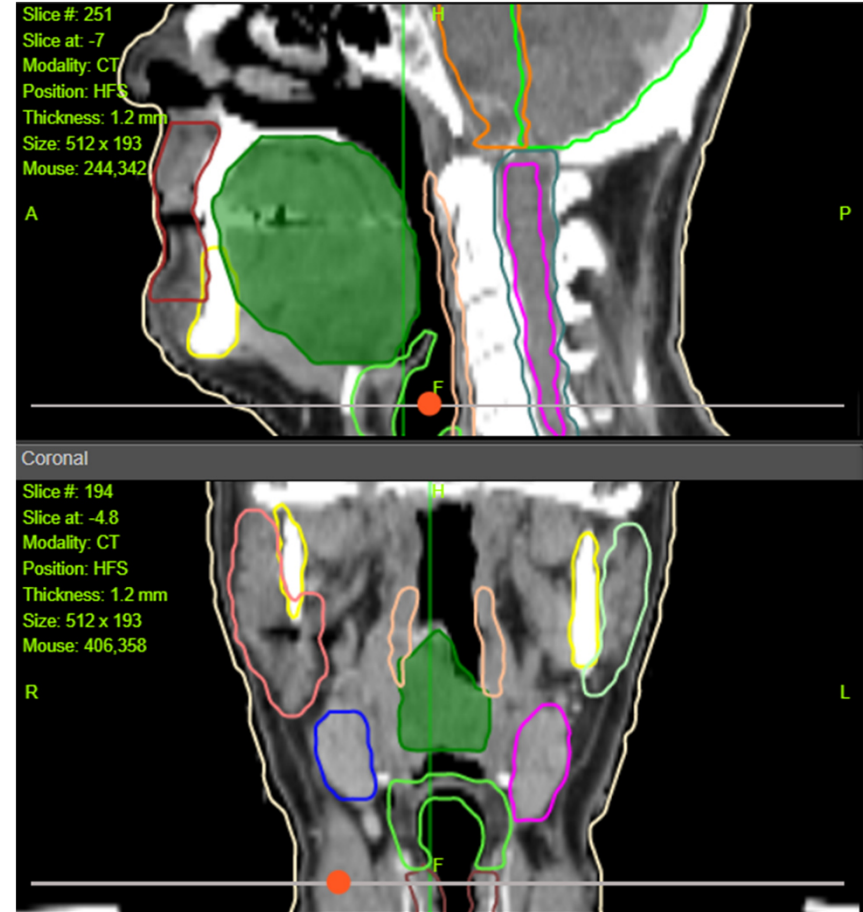
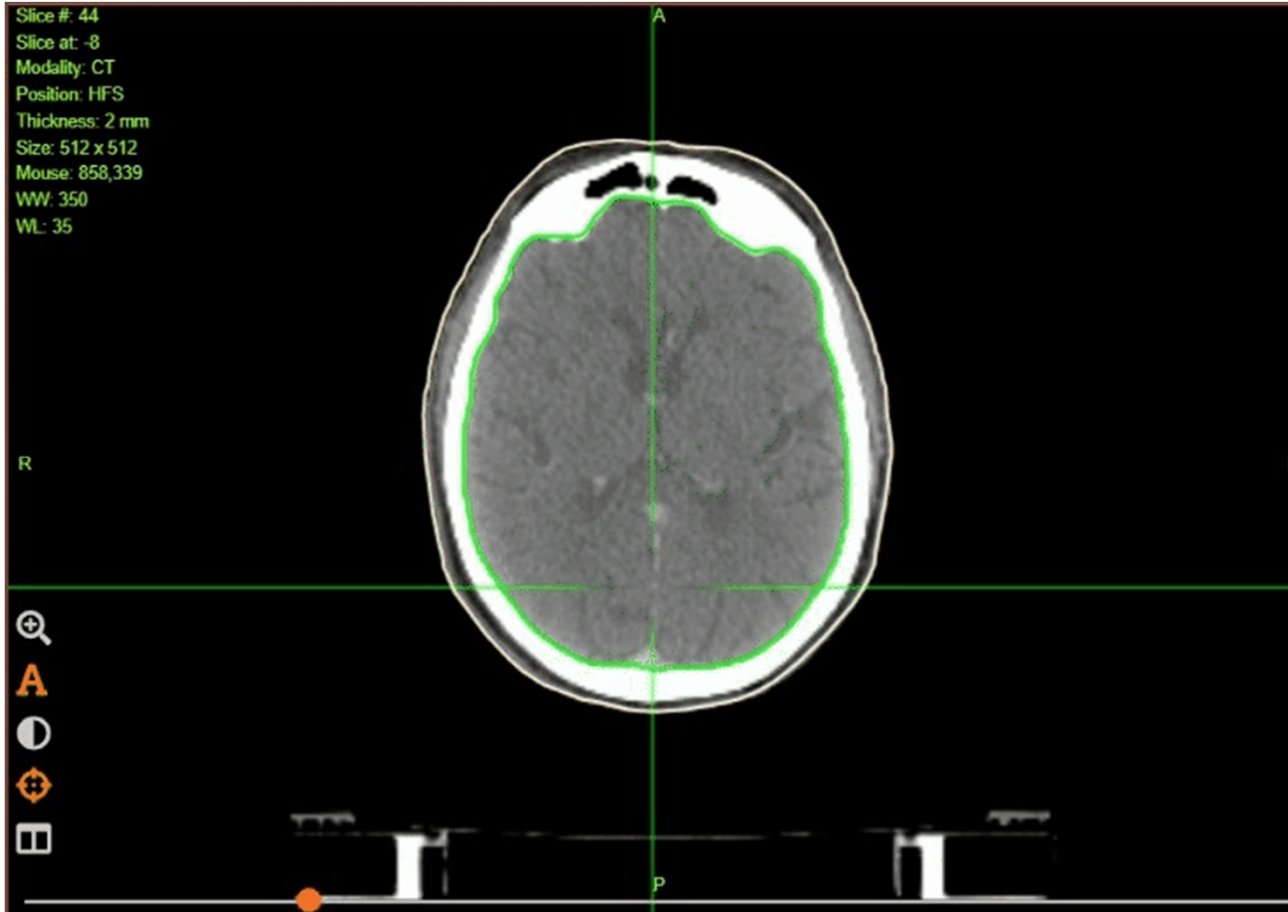
Bespoke Video – the obvious way forward



- Shows you exactly what you need to see
- Tightly edited
- High yield – Every word has been considered
- Ability to have ‘All Star’ cast
- Visual (and audio) editors can depict things on screen that real people can't!

**This requires a Team
Production Effort!!!**

AI will change the way we work



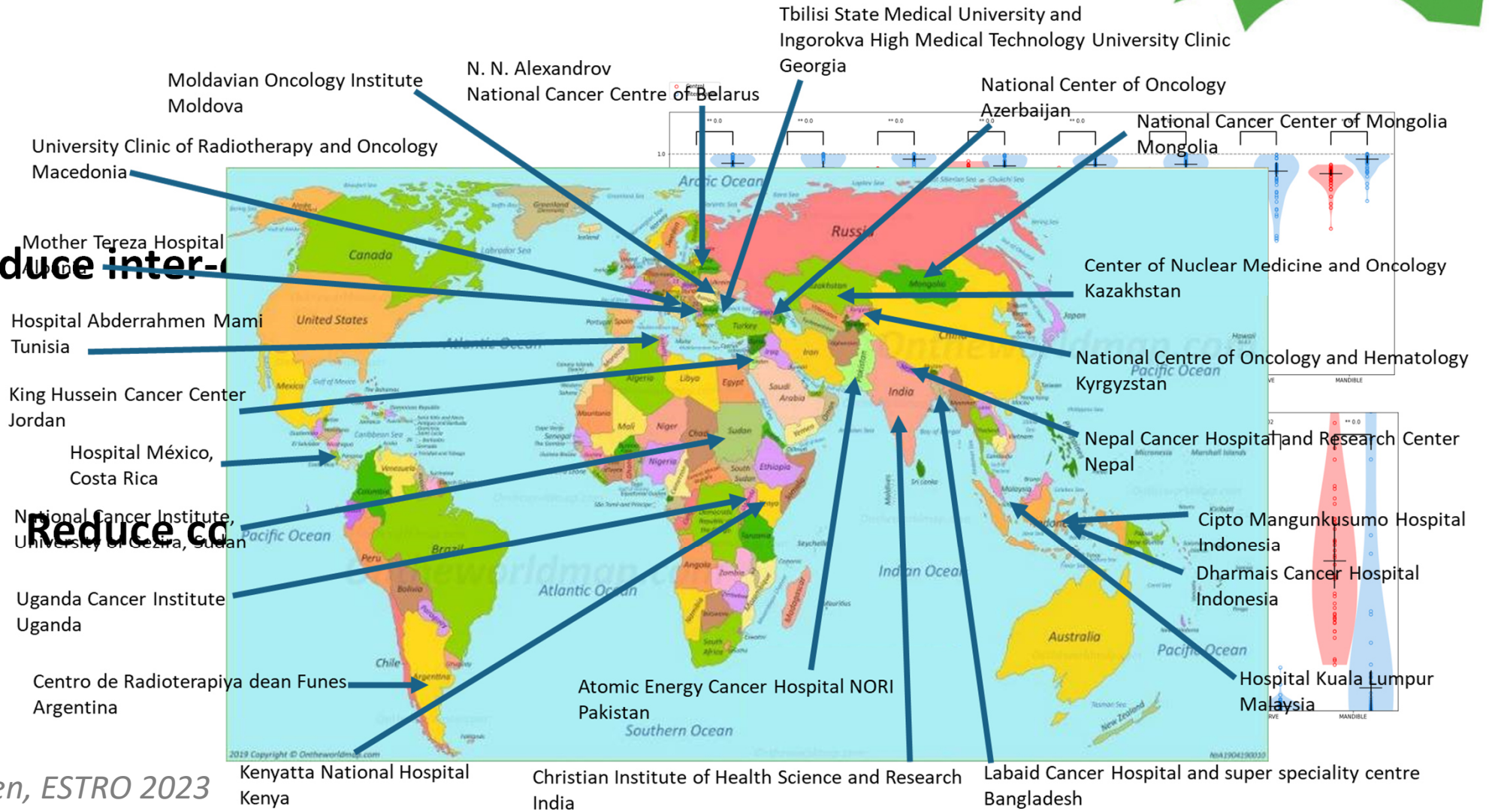
Images from the "ELAISA" study, IAEA, Rasmussen et al

AI will change the way we work



Reduce inter-

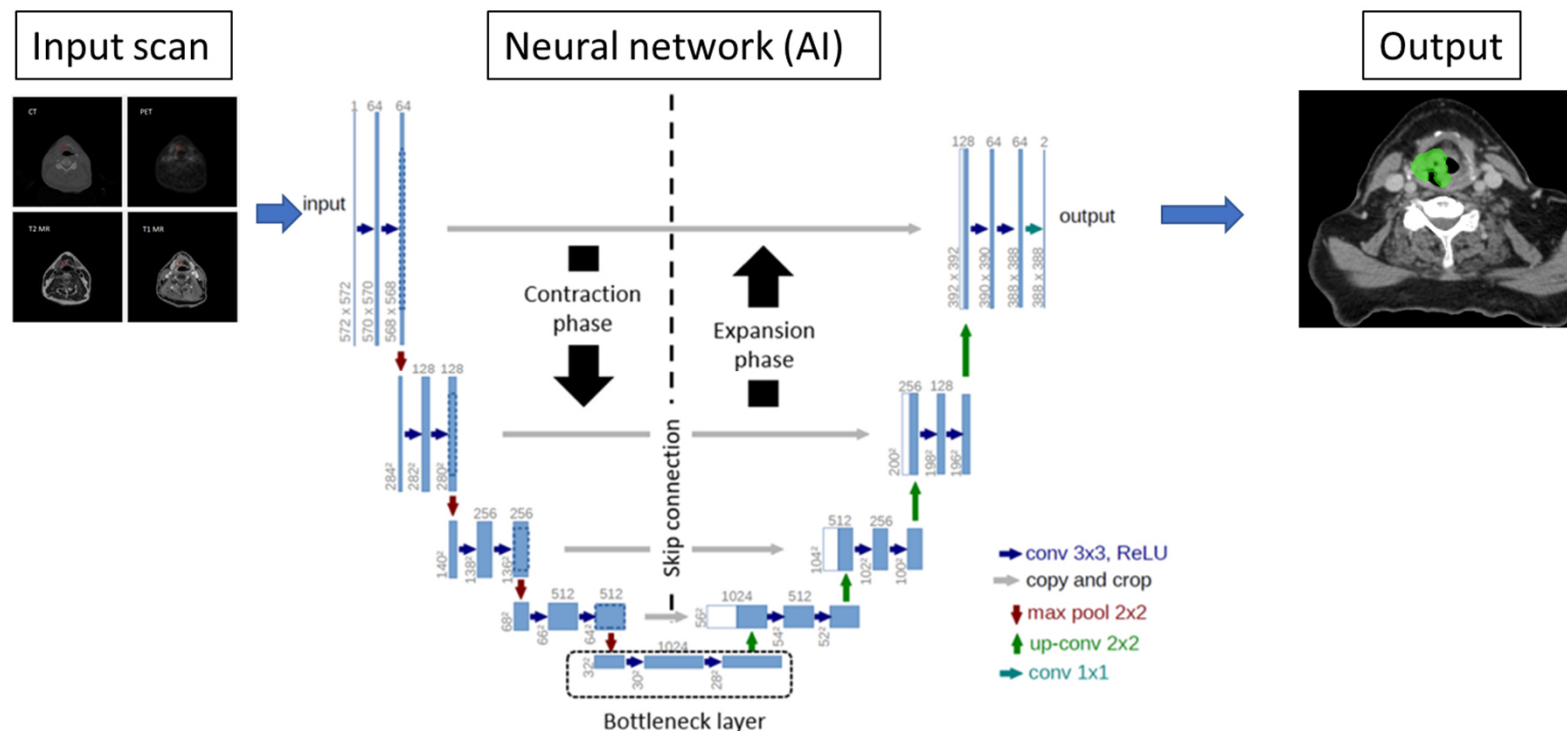
Reduce co-



AI will change the way we work



800 Head and neck cancer patients Aarhus University Hospital 2012-2020



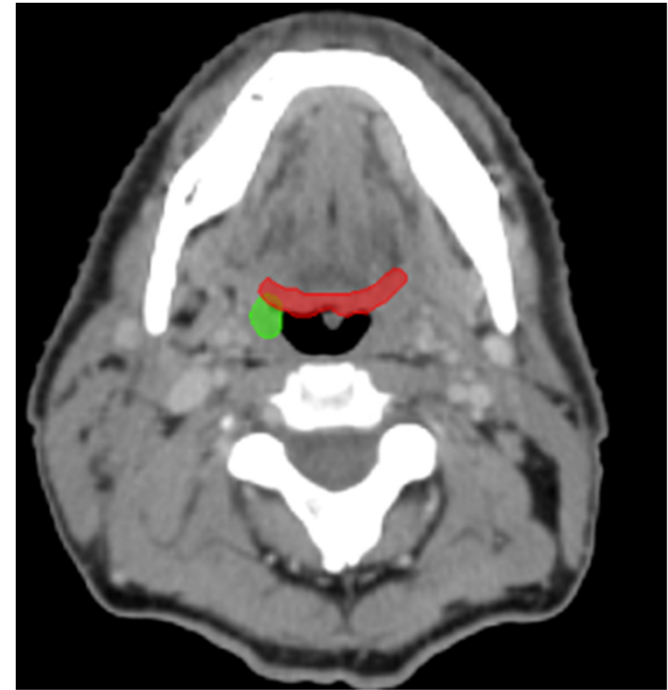
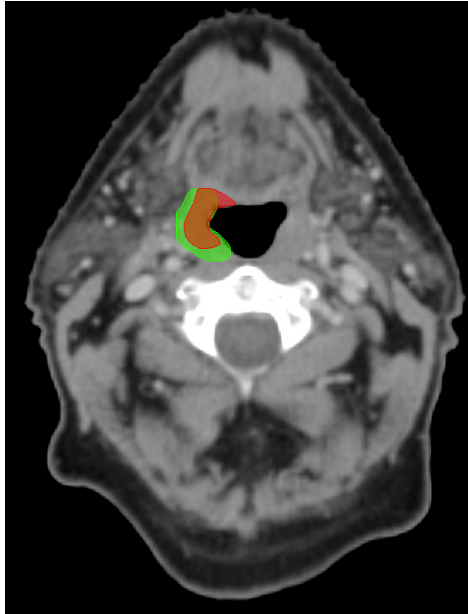
AI will change the way we work



50% is better than:



75% is better than:



Red – expert

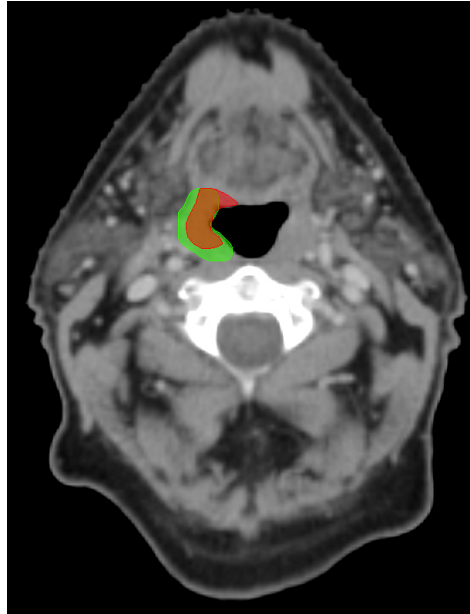
Green – AI

AI will change the way we work

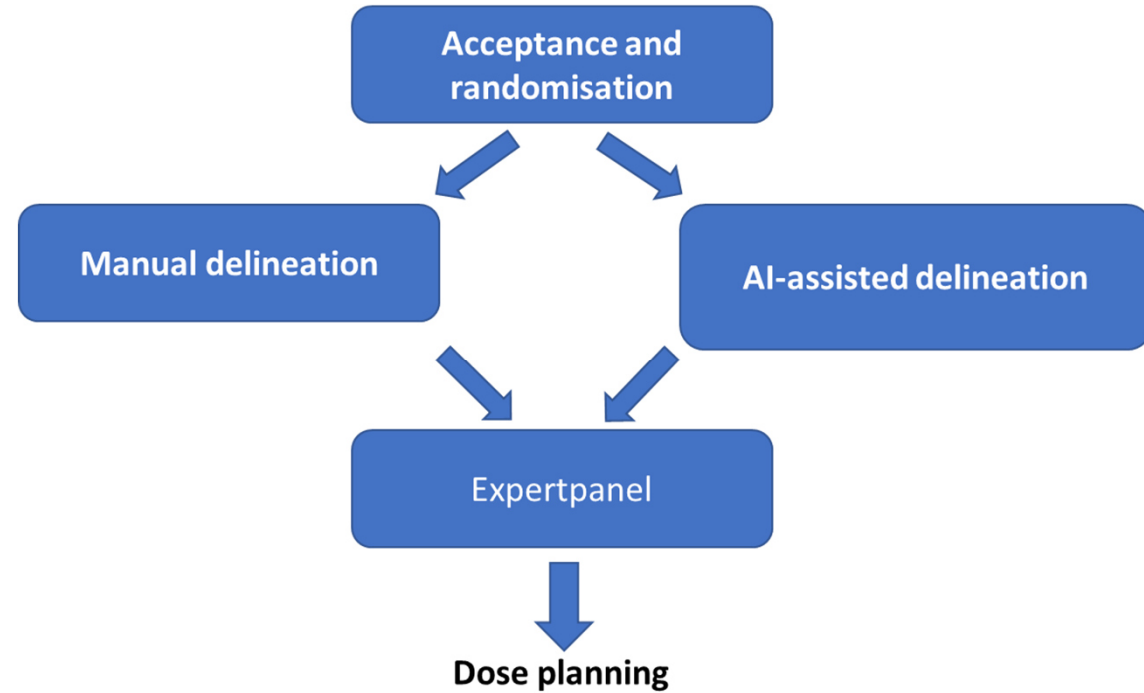
50% is better than:



75% is better than:



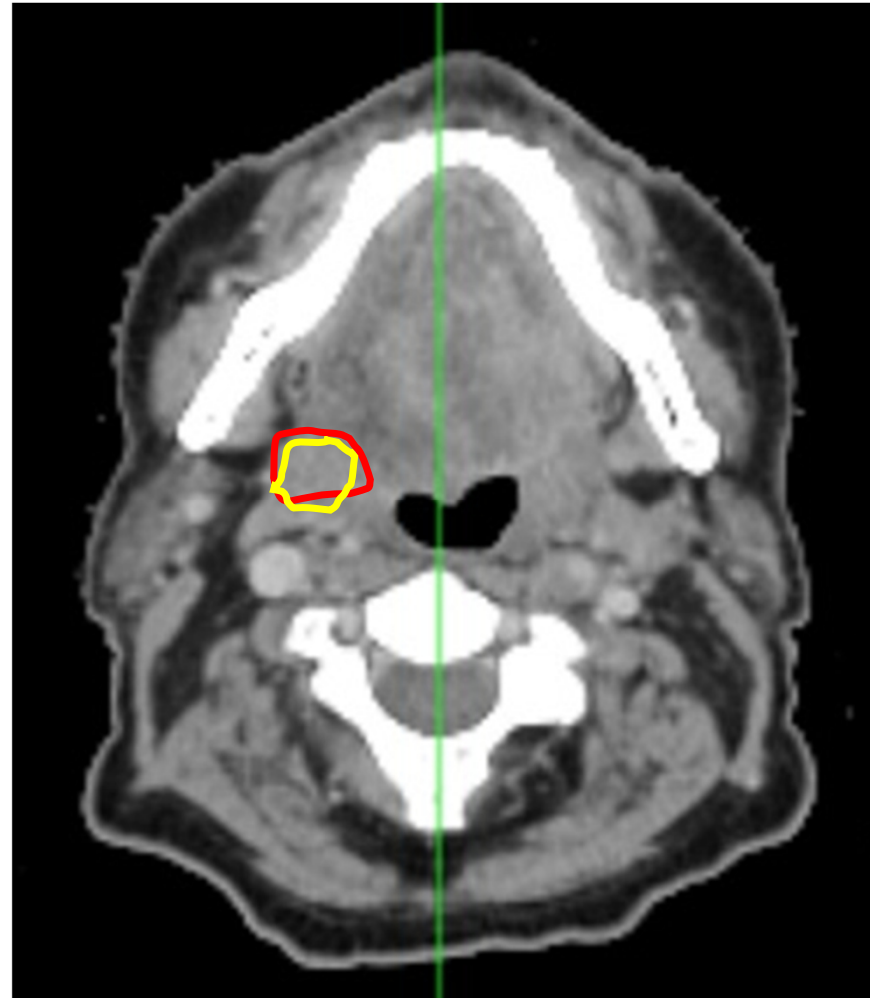
Red – expert
Green – AI



AI will change the way we educate

SKILLS

**Not delineating
but
evaluating**

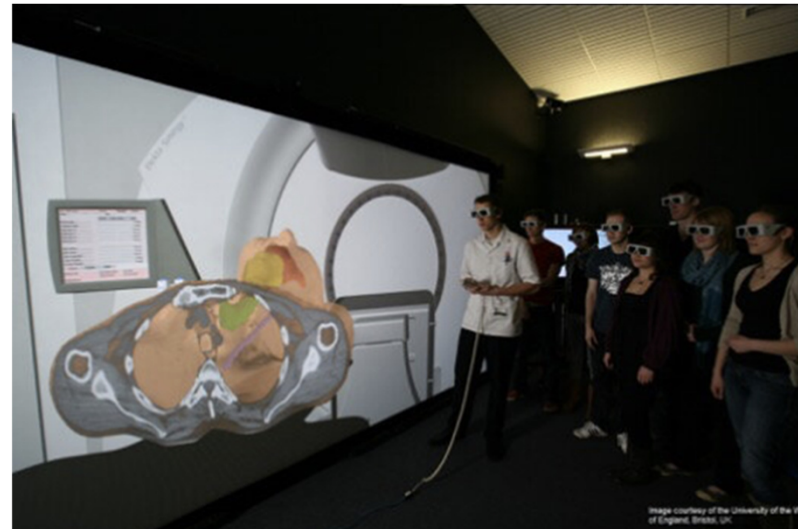


Advanced learning environments

1st generation VR



VERT for RTT's



2nd generation VR



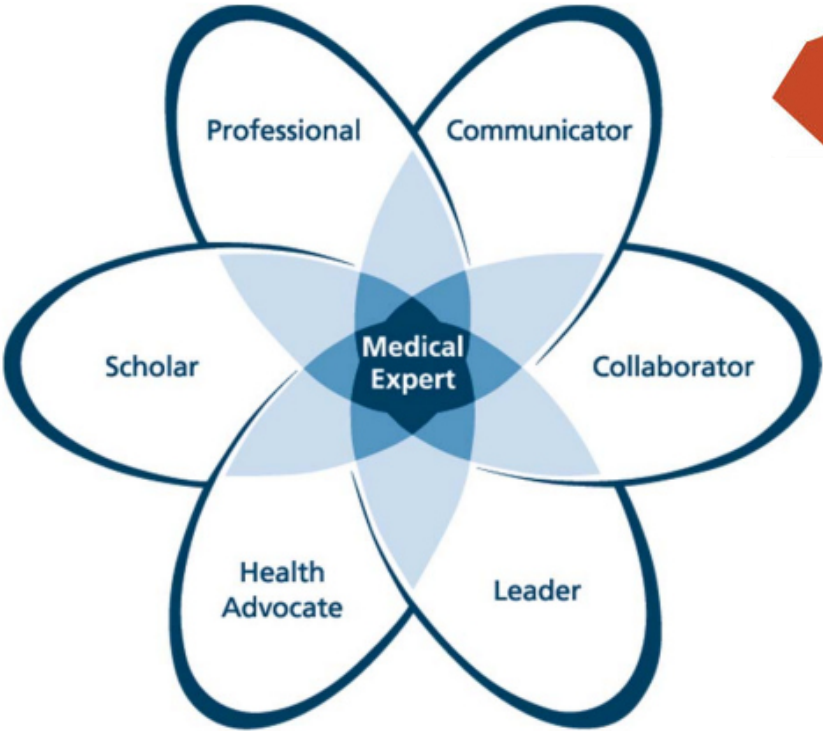
Augmented Reality





**TO
THE FUTURE**™

Entrusted professional activities



Testing in adult learning

EPA and situation testing

Learning Experience

Increase feedback

Linked to skills

Formative assessment

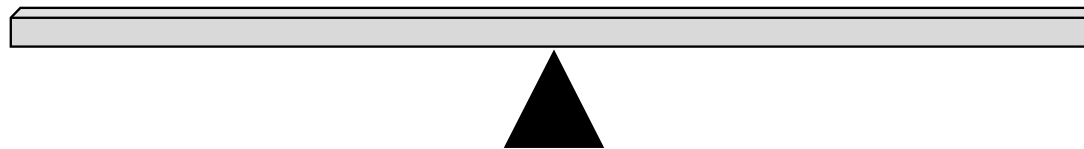
End exams

Learning Experience

Too late for feedback

Typically knowledge only

Summative assessment



The value of mentorship in academic medicine



Mentoring fosters an enduring personal relationship between people to cultivate career knowledge, self-identity and transformation, and social and emotional support among other topics in order to help support a future colleague

The value of mentorship in academic medicine

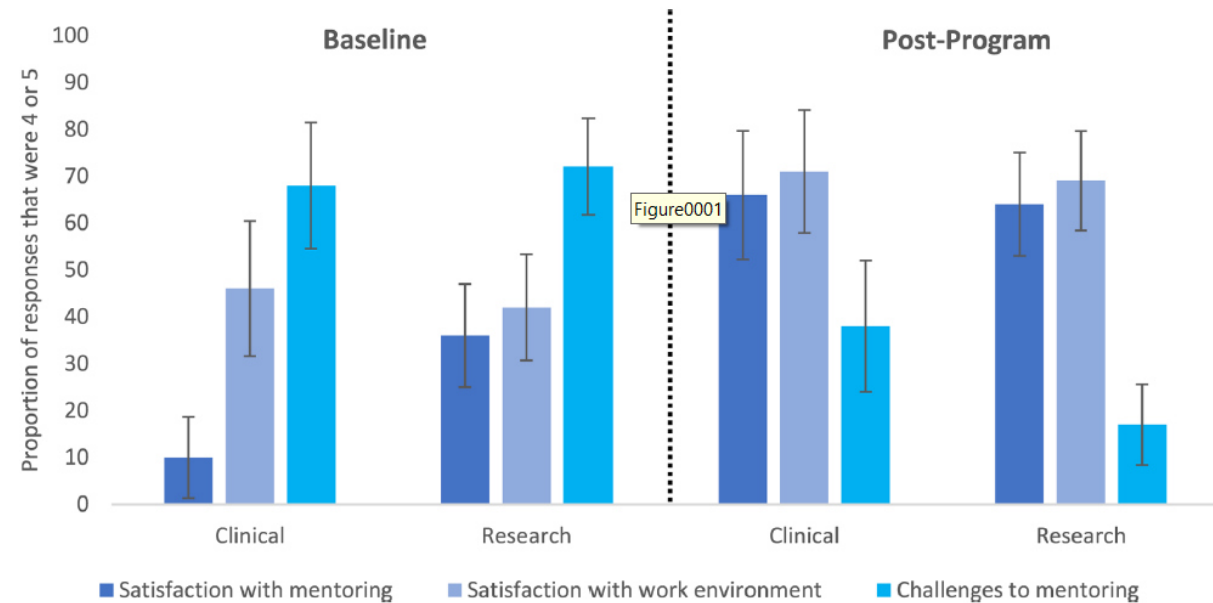
- Mentoring is considered important in academic medicine
- Evidence of the importance is not strong
- More publications, citations and higher H-index
- Faster promotion
- Job satisfaction
- Job retention



Sambunjak, JAMA 2006; Holliday IJROBP 2014; Morrison, Med Teacher 2014; Wasserstein JGIM 2006; Wingard, Academic med 2004

The value of mentorship in clinical medicine

- Radiation Oncology at MSK
- 2020 60 faculty physicians
- 42 junior faculty members
- 32/36 completed one year
- Clinical track & academic track
- 28 continued after first year



Summary



- Time and conditions for clinical education and development is under pressure
- We need to think smarter in medical education and exploit technology
- Not everything can be solved by technology and changes in work structure
- Mentoring is still important and should be emphasized more in the future

ESTRO teaching 2024



Focus on adult education methods and diversity in delivering education

ESTRO SCHOOL 2024

POSTGRADUATE COURSES

ONLINE	Advanced Imaging in Radiotherapy: Current use, Future developments, and the Integration of AI 29-31 January ONLINE	BLEND	Positioning and Immobilisation for Radiotherapy 15-16 June Prague, Czech Republic	LIVE	Image-Guided and Adaptive Radiotherapy in Clinical Practice 10-14 Nov Budapest, Hungary
LIVE	Physics for Modern Radiotherapy February Amman, Jordan	LIVE	Basic Clinical Radiobiology 7-11 Sept Utrecht, The Netherlands	LIVE	Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy 21-24 November Lisbon, Portugal
LIVE	Radiotherapy and Immunology 3-5 March Lisbon, Portugal	LIVE	Multidisciplinary Management of Head & Neck Cancer 15-18 September Florence, Italy	LIVE	Best Practice in Radiation Oncology - Train the RTT (Radiation Therapists) Trainers - Part I 25-29 November Vienna, Austria
LIVE	Particle Therapy 10-14 March Barcelona, Spain	LIVE	CSWOG - ESTRO Evidence Based Radiation Oncology 18-22 September Chengdu, China	LIVE	Quantitative Methods in Radiation Oncology: Models, Trials and Clinical Outcomes 1-4 December Vienna, Austria
LIVE	Comprehensive and Practical Brachytherapy 17-21 March Athens, Greece	LIVE	Advanced Skills in Modern Radiotherapy 22-26 September Vilnius, Lithuania	LIVE	(Accelerated) Partial Breast Irradiation 5-8 December Budapest, Hungary
LIVE	AROI - ESTRO Teaching Course on Gynaecological Cancers 14-17 March Varanasi, India	BLEND	IMRTVMAT and Other Highly Conformal Techniques in Clinical Practice 7-8 Bucharest, Romania	LIVE	AROI - ESTRO Advanced Technologies 5-8 December Patna, India
LIVE	Comprehensive Quality Management in Radiotherapy – Risk Management and Patient Safety 14-17 April Riga, Latvia	LIVE	Image-Guided Radiotherapy and Chemotherapy in Gynaecological Cancer 7-10 October Budapest, Hungary	PRE-MEETING COURSES	
BLEND	Foundation of Leadership in Radiation Oncology 3-4 May Glasgow, United Kingdom	LIVE	Multidisciplinary Management of Non-Melanoma Skin Cancer 17-19 October Krakow, Poland	LIVE Pre-Meeting Courses at ESTRO 2024 3 May Glasgow, United Kingdom	
ONLINE	Evidence Based Radiation Oncology 20-24 May ONLINE	LIVE	Multidisciplinary Management of Lung Cancer 17-19 October Florence, Italy	UNDERGRADUATE COURSES	
LIVE	AROI - ESTRO Head and Neck Oncology 6-8 June Chennai, India	BLEND	Online MRI-guided Radiotherapy 26 September Online kick-off 27-29 October Rome, Italy	LIVE ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students August Antwerp, Belgium	
ONLINE	Physics for Modern Radiotherapy A joint course for clinicians and physicists 10-14 June ONLINE	LIVE	Advanced Physics for Brachytherapy 27-30 October Budapest, Hungary	<ul style="list-style-type: none"> ◆ MULTIMODAL CANCER TREATMENT ◆ RADIO THERAPY TREATMENT PLANNING AND DELIVERY ◆ BIOLOGY ◆ IMAGING ◆ RESEARCH ◆ BEST PRACTICE 	
LIVE	Multidisciplinary Management of Breast Cancer 16-19 June Tel Aviv, Israel	LIVE	Advanced Treatment Planning 20-24 October Vilnius, Lithuania	WWW.ESTRO.ORG	
LIVE	JASTRO - ESTRO Multidisciplinary Management of Lung Cancer 21-23 June Osaka, Japan	LIVE	SEA ROG - ESTRO Topic TBC October Thailand		

ESTRO 2024





3-7 May 2024
Glasgow, UK

ANNUAL
ESTRO
CONGRESS

Abstract submission deadline:
25 October 2023

Radiation Oncology:
Bridging the Care Gap

WWW.ESTRO.ORG

    #ESTRO24