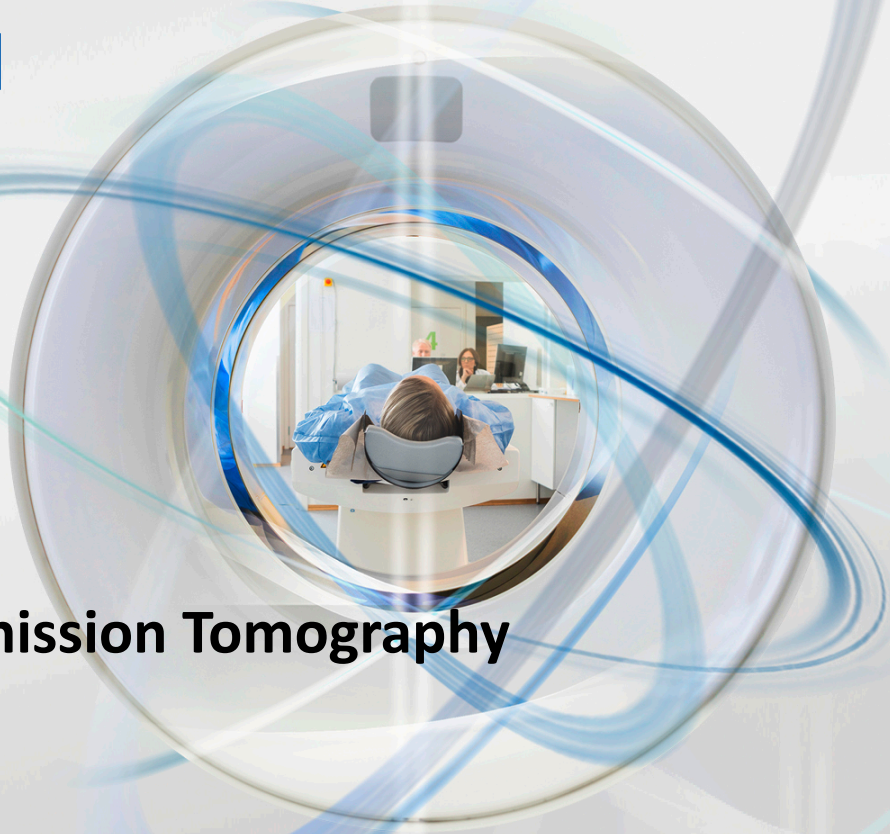
International Atomic Energy Agency Scientific Forum

A Decade of Action on Cancer Control and the Way Forward

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

17—18 September 2019
Vienna International Centre
Board Room D, C Building, 4th Floor

PET Radiopharmaceutical Production in North Macedonia



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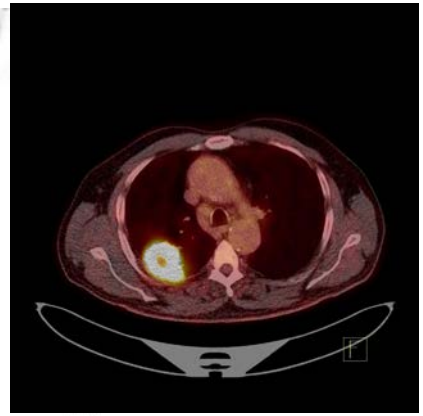
Nuclear Medicine in Oncology

Nuclear medicine is a branch of medicine that uses radiopharmaceuticals to diagnose and treat diseases

One of its most common uses is diagnosing and treating cancer.

Conventional nuclear medicine

Positron Emission Tomography (PET)



WHY & WHERE PET?

^{18}F-FDG

Image of the metabolism of the cancer cells

Lymphoma, Lung Cancer, Melanoma, Breast Cancer, Colon Cancer, Thyroid Cancer…

Staging , Restaging, Response evaluation, Detection of recurrence, Follow-up during or after cytostatic therapy….

PERSONALIZED MEDICINE

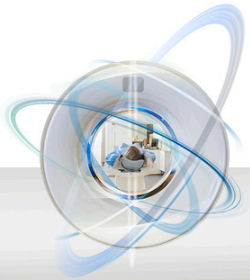
Nuclear Medicine in North Macedonia

Public health

- 2 departments of conventional nuclear medicine
- 1. PET/CT department with **unit for production of radiopharmaceuticals**

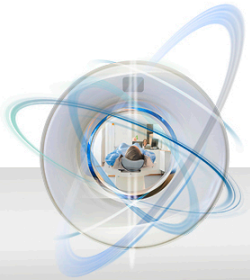
Private hospitals

- 1 conventional n.m. department
- 2 PET/CT departments



IAEA projects

- Preparation of Radioimmunoassay Kits & Radiopharmaceuticals 1995 – 1997
- Local Production of Radiopharmaceuticals 1997 – 2001
- Local Production of Radiopharmaceuticals: Labelling of Monoclonal Antibodies 2001 – 2004
- Upgrading and Modernization of Nuclear Medicine Equipment 1997 – 2001
- Introduction of Radio-guided Lymphatic Surgery 2003 – 2007
- Rehabilitation of Nuclear Medicine Services in South-east Macedonia 2005 – 2010
- Upgrading In Vivo Diagnostic and Therapeutic Nuclear Medicine 2007 – 2010
- **Introducing Positron Emission Tomography (PET) in Clinical Practice 2009-2016**
- Establishing Nuclear Medicine to Improve Health Care of Patients Affected by Chronic Diseases 2012- 2016
- Improving the Practice of Nuclear Medicine by the Introduction of SPECT/CT Hybrid Imaging at the University Clinical Centre “Mother Theresa” 2016- 2018
- **Strengthening and Improving the Quality of Positron Emission Tomography Diagnostics of Oncological and Non-Oncological Patients with New Positron Emission Tomography Radiopharmaceuticals, 2018 – on going**



PET radiopharmaceuticals have very short half life

- ^{18} F - 109.8 min
- ^{11}C - 20.3 min
- ^{13}N - 9.9 min
- ^{15}0 – 2.03min

Cyclotron for production of PET radioisotopes

National Center for Positron Emission Tomography - Project of the Government with IAEA support

Cyclotron

Hot cells

Design of the radiopharmaceutical production facility according to GMP regulations

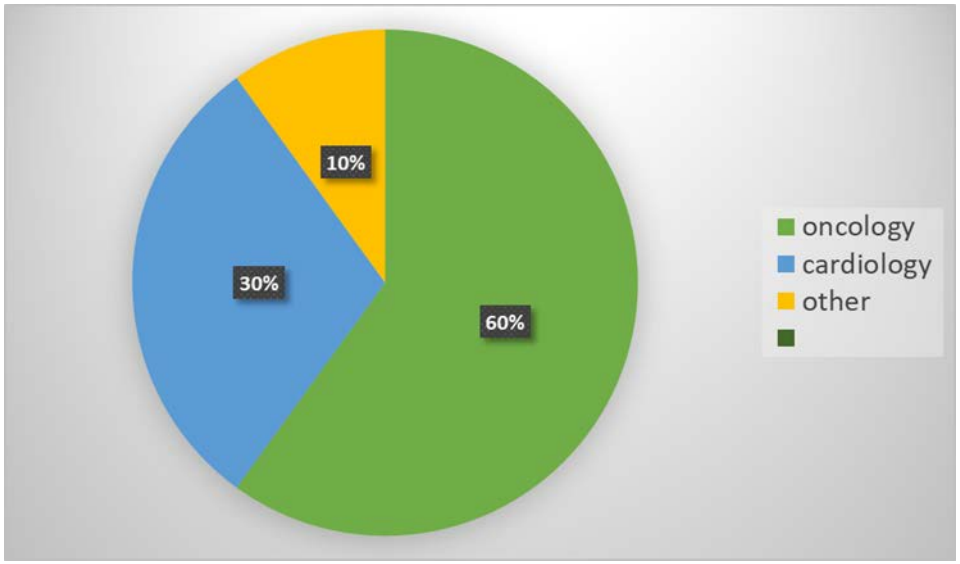
Quality control

IAEA support during all phases

- Feasibility study
- Help & support from experts during planning and building
- Scientific visits from experts from various fields after start in 2016
- 20 long term fellowships
- Training courses

Part of the equipment for radiopharmaceutical production & quality control

Nuclear medicine procedures in diagnostic nuclear medicine in public health institutions



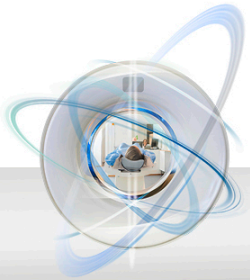
12 000 conventional n.m. scans /year

2000 – 2500 ^{18} F FDG PET/CT scans/year

PET/CT is supported by national health insurance fund

On – going & future projects

- Introduction of other radiopharmaceuticals
- Introduction of PET/ CT in cardiology and neurology
- Scientific projects
- QUANUM – quality management audit
- Expanding the production of radiopharmaceuticals



THANK YOU


УИ·ПЕТ
ЈЗУ Универзитетски Институт
за позитронско - емисиона
томографија

Disclaimer

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