



## Workshop on European Population Doses from Medical Exposure

*24-26 April 2012  
Athens, Greece*





hosted by the  
Greek Atomic Energy Commission

funded by the  
European Commission

Organized by DDM2 project consortium

## General information

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### Workshop venue

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Hellenic Research Foundation Amphitheatre

Address:

[48 Vassileos Constantinou Ave.](#)  
[11635 Athens, Greece](#)

[www.eie.gr](http://www.eie.gr)

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### Registration

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Participants' registration will be made at workshop venue. Registration includes:

- Workshop folder: programme, list of participants, pen, notepad
- Name badge
- Coffee breaks and light lunches

Fee required for the workshop dinner will be paid at registration desk only in cash the latest by Wednesday morning.

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### Posters

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The poster area is located in the atrium, outside the workshop amphitheatre. The mounting of posters is scheduled for Tuesday, 24 April 2012, before the opening session.

Poster panels will be marked with the poster ID-numbers, as mentioned in the poster presentations list. Posters should be fixed to the poster panel using blue tack provided on site.

Authors are requested to remove their posters from the panels the last day of the workshop, after the closing session. The organizers have no responsibility to collect and return the posters.

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### Contact

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### Working website

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<http://ddmed.eu/workshop>

# Scientific programme

## Tuesday, 24 April

08:00 - 17:00 Registration / poster mounting

09:00 - 09:10 Opening by:  
*Christos Housiadas, GAEC Chairman*  
*Ritva Bly, Project Leader*

### GENERAL INTRODUCTION TO POPULATION DOSE ESTIMATION

**Chairpersons: Hilde Olerud, Abbas Aroua**

09:10 - 09:30 Legal basis for population dose estimates and EC expectations from DDM2 [O.1]  
*Georgi Simeonov, European Commission*

09:30 - 09:50 Introduction to population dose estimations in DDM2 [O.2]  
*Ritva Bly, Project leader*

09:50 - 10:10 Data on medical exposures from a global point of view [O.3]  
*Ferid Shannoun, UNSCEAR*

10:10 - 10:30 Coffee Break

### METHODOLOGY FOR POPULATION DOSE ESTIMATES

**Chairpersons: Hannu Järvinen, Paul Stoop**

10:30 - 10:45 Categorization of X-ray examinations; TOP 20, 75 and 225 [O.4]  
*Hilde Olerud, NRPA*

10:45 - 11:15 How to estimate typical effective doses for X-ray procedures? [O.5]  
*Paul Shrimpton, HPA*

11:15 - 11:45 How to estimate typical effective doses for NM examinations (including PET-CT)? [O.6]  
*Bernard Aubert, IRSN*

11:45 - 12:15 How to determine examination frequencies and population dose estimates for X-rays and NM? [O.7]  
*Jenia Vassileva, NCRRP*

12:15 - 12:30 Break

### STATUS OF EXAMINATION FREQUENCIES IN EUROPE

**Chairpersons: Andreas Jahnen, Virginia Tsapaki**

12:30 - 12:50 Summary of the general data based on European questionnaires [O.8]  
*Abbas Aroua, IRA*

12:50 - 13:10 Summary of examination frequencies for X-ray procedures [O.9]  
*Elke Nekolla, BfS*

13:10 - 13:30 Summary of examination frequencies for NM procedures [O.10]  
*Anders Frank, SSM*

13:30 - 14:30 Lunch

### STATUS OF POPULATION DOSES IN EUROPE

**Chairpersons: Ritva Bly, Renato Padovani**

14:30 - 14:50 Summary of the population dose for X-ray procedures [O.11]  
*Hannu Jarvinen, STUK*

14:50 - 15:10 Summary of the population dose for NM procedures [O.12]  
*Paul Stoop, RIVM*

15:10 - 15:30 Problems in population dose estimations, X-ray and NM procedures [O.13]  
*Jenia Vassileva, NCRRP*

15:30 - 15:50 Discussion

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15:50 - 16:10 Coffee Break

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**STATUS OF EUROPEAN POPULATION DOSE DATABASE AND GUIDANCE**

**Chairpersons: Stavroula Vogiatzi, Elke Nekolla**

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16:10 - 16:30 European database for population dose registration and follow-up [O.14]  
*Andreas Jahnen, CRP-Henri Tudor*

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16:30 - 16:50 Suggested need of improvements for the European Guidance (RP 154) [O.15]  
*Ritva Bly, STUK*

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16:50 - 17:00 Discussion

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17:40 - 19:30 **Social programme: Guided tour in the New Acropolis Museum**

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**Wednesday, 25 April**

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08:30 - 17:00 Registration at National Hellenic Research Foundation

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**NATIONAL EXPERIENCES ON POPULATION DOSE ESTIMATION**

**Session 1 – X-ray and NM examinations**

**Chairpersons: Ritva Bly, Anders Frank**

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09:00 - 09:15 Radiation dose of the Bulgarian population from X-ray and Nuclear Medicine examinations [O.16]  
*Simona Avramova-Cholakova, Bulgaria*

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09:15 - 09:30 Frequency and collective dose for the Nuclear Medicine and the TOP 20 X-ray examinations in Portugal, 2011 [O.17]  
*Pedro Teles, Portugal*

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09:30 - 09:45 Population dose assessment from x-ray and nuclear medicine examinations in Serbia [O.18]  
*Danijela Arandjic, Serbia*

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09:45 - 10:00 Radiation exposure of the Italian population from diagnostic radiology and nuclear medicine examinations [O.19]  
*Gaetano Compagnone, Italy*

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10:00 - 10:15 Break

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**NATIONAL EXPERIENCES ON POPULATION DOSE ESTIMATION**

**Session 2 – X-ray examinations**

**Chairpersons: Hannu Järvinen, Bernard Aubert**

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10:15 - 10:30 Trends in examination frequency and population doses in Norway, 2002 - 2008 [O.20]  
*Hilde Olerud, Norway*

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10:30 - 10:45 Patient Dose Evaluation and Experiences in Collection of Frequencies for X-ray Procedures [O.21]  
*Jonas Marcinkevicius, Lithuania*

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10:45 - 11:00 Survey of population doses from selected X-ray examinations in Slovakia [O.22]  
*Dusan Salat, Slovakia*

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11:00 - 11:15 Automation of the collection of the frequency of X-ray examinations: a pilot study [O.29]  
*Regis Le Coultre, Switzerland (presented by Eleni Theano Samara, Switzerland)*

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11:15 - 11:40 Discussion

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11:40 - 12:00 Coffee break

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**NATIONAL EXPERIENCES ON POPULATION DOSE ESTIMATION**

**Session 3 –NM examinations**

**Chairpersons: Hilde Olerud, Paul Stoop**

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12:00 - 12:15 Contribution of nuclear medicine to the exposure of the French population in 2007 [O.23]  
*Cecile Etard, France (presented by Bernard Aubert, France)*

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12:15 - 12:30 The estimation of collective dose from medical exposures from diagnostic nuclear medicine examinations in Croatia [O.24]  
*Dario Faj, Croatia*

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12:30 - 12:45	Dosages and use of different nuclides in diagnostic nuclear medicine imaging [O.25] <i>Ischa DeWaard, The Netherlands</i>
12:45 - 13:00	Population Collective Effective Dose from Nuclear Medicine Procedures in Greece [O.26] <i>Stavroula Vogiatzi, Greece</i>
13:00 - 14:00	Lunch break

### GLOBAL EXPERIENCES ON POPULATION DOSE ESTIMATION

**Chairpersons: Paul Shrimpton, Abbas Aroua**

14:00 - 14:30	Ionizing Radiation Exposure of the Population of the United States [ <i>Invited presentation</i> , O.30] <i>David A. Schauer, NCRP</i>
14:30 - 14:45	Australian per Caput Dose from Diagnostic Imaging and Nuclear Medicine [O.31] <i>Anthony Wallace, Australia</i>
14:45 - 15:00	A Comparison of classification methodologies of Health Care Levels used by UNSCEAR and WHO [O.32] <i>Ferid Shannoun, UNSCEAR</i>
15:00 - 15:20	Coffee break

### SPECIAL TOPICS

**Chairpersons: Andreas Jahnen, Virginia Tsapaki**

15:20 - 15:35	Impact of different interpretations within TOP 20 approach for population dose estimation [O.33] <i>Hannu Järvinen, Finland</i>
15:35 - 15:50	Initial survey results on the accuracy of dose data in the DICOM objects [O.34] <i>Renato Padovani, Italy</i>
15:50 - 16:05	Computed Tomography Doses in Nuclear Medicine [O.35] <i>Katja Merimaa, Finland</i>
16:05 - 16:20	Age and sex distribution of CT examinations in Poland [O.36] <i>Dariusz Kluszczynski, Poland</i>

### POSTER SESSION

**Chairpersons: Hilde Olerud, Jenia Vassileva**

16:20 - 16:40	Summary of posters
16:40 - 18:00	Time for poster watching
20:30	<b>Social programme: Workshop Dinner</b>

# Thursday, 26 April

8:30-12:00 Registration at National Hellenic Research Foundation

## NATIONAL DIAGNOSTIC REFERENCE LEVELS AND DOSE SURVEYS

**Chairpersons: Andreas Jahnen, Renato Padovani**

09:00 - 09:20	Summary of national DRLs for x-ray procedures in Europe [O.37] <i>Hannu Järvinen, STUK</i>
09:20 - 09:40	Summary of national DRLs for NM procedures in Europe [O.38] <i>Stavroula Vogiatzi, GAEC</i>
09:40 - 09:55	National diagnostic reference levels for fluoroscopy-guided procedures in Gastroenterology, Urology and Pediatric Cardiology [O.39] <i>Eleni Theano Samara, Switzerland</i>
09:55 - 10:10	The study of patient doses in diagnostic radiology for establishment of national diagnostic reference levels [O.40] <i>Larysa Stadnyk, Ukraine</i>
10:10 - 10:25	Entrance surface dose for selected radiological procedures in Poland [O.41] <i>Piotr Pankowski, Poland</i>
10:25 - 10:40	Diagnostic reference levels in x-ray and nuclear medicine procedures in France: evolution of collected data and collection tools [O.42] <i>Patrice Roch, France</i>
10:40 - 10:55	Assessment of radiation dose to pediatric patients in computed tomography [O.43] <i>Abdelmoneim Sulieman, Sudan</i>
10:55 - 11:15	Coffee break

## CONCLUSIONS

**Chairpersons: Hilde Olerud, Stavroula Vogiatzi**

11:15 - 11:45	European population dose and database [O.44] <i>Ritva Bly, STUK</i>
11:45 - 12:15	Major recommendations for improving for the EU guidelines (RP 154) [O.45] <i>Hannu Järvinen, STUK</i> <i>General Discussion: Project staff at panel</i>
12:15 - 12:45	CLOSING REMARKS <i>Georgi Simeonov, EC</i>
12:45 - 13:00	<i>Stavroula Vogiatzi, GAEC, Local Organizing Committee</i> <i>Ritva Bly, STUK, Project leader</i>



# Poster presentations

Experience in collecting and analyzes of the frequency of X-ray diagnostic investigations in Ukraine [P.1]  
*Stadnyk Larysa, Ukraine*

System of collection of medical exposure data in the Russian Federation [P.2]  
*Zvonova Irina, Russian Federation*

Trends in the choice of Xray, CT and MR over 20 years in Norwegian radiology for examinations of head and spine [P.3]  
*Olerud Hilde Merete, Norway*

Patients radiation doses from x-ray examinations in Sudan [P.4]  
*Sulieman Abdelmoneim, Sudan*

Population exposure from Radiological medical examinations in Chania General Hospital [P.5]  
*Seferlis Stavros, Greece*

Dose estimation received by adults undergoing radiological examinations in St. Paul's District General Hospital branch - Panagia of Thessaloniki [P.6]  
*Vernadakis - Michailakis Pavlos, Greece*

Dosimetric comparison of mammography systems with different target/filter combinations [P.7]  
*Salvara Katerina, Greece*

Preliminar radioprotection analysis on IGRT and kV imaging in RT treatments. Dosimetry, radioprotection and image quality impact [P.8]  
*Mari Alberto, Italy*

Patient doses during four common cardiac electrophysiology procedures [P.9]  
*Papageorgiou Evangelia, Greece*

Evaluation of radiation exposure of patients undergoing percutaneous transhepatic biliary drainage with stent to the duodenum using two Monte Carlo methods [P.10]  
*Karavasilis Efstratios, Greece*

Adult radiation doses from multi-detector CT exams: preliminary results from the first Italian SIRM survey [P.11]  
*Palorini Federica, Italy*

Pilot Results of the National Survey on Radiation Dose in CT in The Netherlands [P.12]  
*Stoop Paul, Netherlands*

Assessment of the exposure of the Swiss population to computed tomography in 2008 [P.14]  
*Aroua Abbas, Switzerland*

Establishment of Diagnostic Reference Levels for dental intraoral radiography in Greece [P.15]  
*Manousaridis Georgios, Greece*

Preliminary Australian Diagnostic Reference Levels for Multi-Detector CT [P.16]  
*Wallace Anthony, Australia*

Establishment of the Local Dose Reference Levels for Direct Digital Radiology protocols at the Nicosia General Hospital [P.17]  
*Christofides Stelios, Cyprus*

Establishment of Local Dose Reference Levels for four CT protocols and size specific dose estimations at the Nicosia General Hospital [P.18]  
*Christofides Stelios, Cyprus*

Pediatric Chest X-Ray Protocol optimization and establishment of Local Dose Reference Levels of different age groups at Arch. Makarios III pediatric hospital [P.19]  
*Christofides Stelios, Cyprus*

Dosimetric considerations for combined chest-abdomen neonates' radiographs [P.20]  
*Hatziioannou Konstantinos, Greece*

Verification of radiation doses calculations during paediatric barium meal and cystourethrography examinations using PCXMC 2.0 and MCNP5 Monte Carlo codes [P.21]  
*Dimitriadis Anastasios, Greece*

Pediatric nuclear medicine in the Netherlands - Dosages and state of affairs in 2010 [P.22]  
*De Waard Ischa, Netherlands*

Examination frequency and population dose from nuclear medicine (NM) examinations in Norway in 2008 [P.23]  
*Unhjem Jan Frede, Norway*

Evaluation of patient doses related to the nuclear medicine investigations in the period 2005-2009, in Hungary [P.24]  
*Pellet Sandor, Hungary*

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Statistical review of administered dose to PET/CT patients at “Evangelismos” General Hospital and evaluation of the concordance with the EANM guidelines [P.25]

*Samartzis Alexandros, Greece*

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“Radiophilia”: A Tragic Phenomenon in Diagnostic radiology [P.26]

*Abdollahi Hamid, Iran*

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Recent technical advances and future perspectives concerning protection of Population and Biomedical Equipment against E/M Radiation Medical Exposure as described in relevant Industrial Property Documents [P.27]

*Spyropoulos Basile, Greece*

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Variation of gene expression level arising from occupational exposures of medical radiation workers [P.28]

*Bahreyni Toossi, Mohammad Taghi, Iran*

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## Social programme

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Tuesday, 24 April 2012, 17.40 – 19.30

### New Acropolis Museum visit

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The New Acropolis Museum visit and guided tour will be organized on Tuesday 24 April 2012. The tour is kindly offered by GAEC.

The Museum is next to the “Acropolis” metro station.

Wednesday, 25 April 2012, 20.30 – 23.30

### Dinner at the restaurant of the Royal Olympic Athens Hotel

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The workshop dinner will take place on Wednesday, 25 April 2012 at the roof-garden restaurant of the Royal Olympic Athens Hotel, located in the city centre. The location offers a remarkable view of the Acropolis and the Lycabettus hill, laying just in front of the famous Temple of Zeus and the National Gardens.

If you are using metro line 3, get off at “Syntagma” Station. At “Syntagma” Station you switch lines in the direction of Ag. Dimitrios and get off at the first Station, the “Acropolis” Station. From the “Acropolis” Station the Hotel is 200m away, walking along Ath. Diakou Street.

Contact details:

Royal Olympic Athens Hotel  
28-34 Athanasiou Diakou Str.  
Tel.: +30 210 9288400

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Click on the following URL to see the map for the Acropolis area, where both social events will take place:

<http://maps.google.com/maps/ms?msid=217545943193970880031.0004bdef10518a9e30a44&msa=0&ll=37.973855,23.739266&spn=0.012754,0.027874>

# Committees

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## Scientific Committee

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Ritva Bly (STUK, Finland), chair  
Abbas Aroua (IRA, Switzerland)  
Bernard Aubert (IRSN, France)  
Anders Frank (SSM, Sweden)  
Andreas Jahnen (CRP-Henri Tudor, Luxembourg)  
Hannu Jarvinen (STUK, Finland)  
Elke Nekolla (BfS, Germany)  
Hilde Olerud (NRPA, Norway)  
Renato Padovani (EFOMP, Italy)  
Ferid Shannoun (UNSCEAR)  
Paul Shrimpton (HPA, UK)  
Georgi Simeonov (EC)  
Paul Stoop (RIVM, the Netherlands)  
Virginia Tsapaki (EFOMP, Greece)  
Jenia Vassileva (NCRRP, Bulgaria)  
Stavroula Vogiatzi (GAEC, Greece)

## Local Organizing Committee (GAEC)

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Stavroula Vogiatzi  
Kyriaki Irodiadou  
Ioannis Kaissas  
Vasiliki Tafili

## Dose Datamed 2 Partners





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