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| **Project Title** | **Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy** | | | | |
| **Oracle Project Number** | 2060757 | | | | |
| **Objectives** | Reinforcement and further development of Quality Assurance/Quality Control Programme in radiotherapy in Croatia to improve quality and efficiency of radiation therapy and to avoid accidental exposure during therapeutic exposure. Since it is recognized as a long term objective graduated approach is followed: a) introduction of QA/QC systems in two major radiotherapy departments was done in the last TC cycle, but in light of major renewal of radiation therapy equipment in all radiotherapy departments in Croatia during last year there is need for further work b) awareness of QA/QC importance was recognized at national level and partially accomplished. Nevertheless, the work should be continued untill complete expansion to the national level will be fullfilled. | | | | |
| **General Project Data** | | |
| **Field(s)** | | (29) Dosimetry and medical physics | | | |
| **Project Achievements** | | CRO6010 Closure Report  Baseline of the current project, were the results of the CRO/6008 project. Procedures developed, described and implemented into two hospitals through the project CRO/6/008 were reviewed in light of new radiotherapy equipment purchased as well as advanced radiotherapy techniques implemented. Reinforcement and further development of Quality Assurance/Quality Control Programme in radiotherapy in Croatia to improve quality and efficiency of radiation therapy and to avoid accidental exposure during therapeutic exposure was the objective of the project.  During the implementation of the project, the experts from Rijeka and Osijek disseminated reviewed procedures and protocols to other centres, since similar radiotherapy equipment was purchased for all radiotherapy departments in Croatia. The attendance of two responsible medical experts, one from Clinical Hospital Rijeka and one from University; Medical Faculty; University J.J. Strossmayer in Osijek at the conference on radiotherapy was very useful since at least two sessions per day were dedicated to the issues of QA/QC in medicine. One scientific visitor learned the design and a practical implementation of QA programme in advanced radiotherapy department, specifically in the transition from 2D to 3D CRT and implementation of IMRT. The primary objective of three practical on-the-job fellowship trainings to learn all about the introduction to a comprehensive quality assurance program in an advanced radiotherapy centre, to see how QA/QC processes should be organized which equipment to use for the purpose of QA/QC and the qualification of personnel working with that equipment. Treatments planning techniques and follow up of the patients that are on treatment were also included in the training.  Output  1. Radiotherapy teams from two major regional hospitals radiotherapy departments trained in advanced QA/QC procedures.  2. Equipment QC protocols and procedures developed under CRO/6/008 were supplemented according to the new radiation therapy equipment installed.  3. Proposed protocols were upgraded and further developed according to analyse of results of national audits performed.  4. Radiation therapy QC procedures upgraded in two major regional hospitals according to new radiation therapy equipment installed. Upgraded equipment protocols were independently tested in pilot hospitals.  5. National workshops organized in cooperation with relevant national professional societies and regulatory body on QA/QC in radiotherapy was already in process but postponed to later date, but partially substituted by conducting the off-site workshops by the national well trained experts, demonstrating the use of QC equipment measurements, procedures and possible benefits from implementing QA/QC systems at radiotherapy department.  6. Internal audits were performed in order to share the experiences from the two hospitals with medical physicist and radiotherapy technologists engaged in QC in other hospitals in the country.  7. Workgroups in front of medical physicist society were established to assist the regulatory body in implementation the radiation protection regulation related to QA/QC in radiotherapy.  8. Trained experts started to elaborate the regulatory framework in advanced QA/QC procedures for radiotherapy departments. New “Regulations about Conditions and Measures of Radiation Protection in Use of Electrical devices which Produce Ionising Radiation”, demanding the implementation of QA/QC in radiotherapy were issued.  Outcome  1. QA/QC programmes in two major regional hospitals were upgraded and harmonized according to new radiation therapy equipment installed and reviewed.  2. Awareness of importance of QA/QC system for the radiation therapy treatment outcome and avoidance of accidental exposure in radiation therapy built on national level.  3. Expansion of renewed and upgraded QA/QC programme from two pilot hospitals to full national coverage using the help of professional societies and the regulatory body. | | | |
| **ACC Sector** | |  | | **Project Status** | Completed on 2014-08-28 | |
| **Original Funding** | | Core | | **1st Year Of Approval** | 2012 | |
| **Estimated Duration** | | 2 year(s) | | | |

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| **IAEA Personnel** | |
| **Programme Management Officer** | CHUPOV, Andrey | |  | Europe Section 2 |
| **Section Head** | SALMINS, Andrejs | |  | Europe Section 2 |
| **Technical Officer(s)** | HEALY, Brendan James | |  | Dosimetry and Medical Radiation Physics Section |

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| **Recipient Institutes and Counterpart(s)** | |
| Croatia | University J.J. Strossmayer; University J.J. Strossmayer; Medical Faculty; (FAJ, Dario) | |
| Croatia | University Hospital Osijek; Department of Oncology and Radiotherapy; (KASABASIC, Mladen) | |
| Croatia | Clinical Hospital Center Rijeka; (JURKOVIC, Slaven) | |

**Current Year Financial Status**

| **Fund** | **Component** | **Current Year Disbursement** | **Current Year Unliquidated Obligation** | **Previous Year Disbursement** | **Previous Year Unliquidated Obligation** | **Current Year Implementation** | **Total Implementation** | **Total Disbursement** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Grand Total** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

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| **Financial Approvals** | | | | |
| **Core Approvals** | | | | | |
| **Year** | **Experts** | **Meetings/Workshops** | **Fellowships** | **Scientific Visits** | | | **Training Courses** | **HR Total** | **Equipment** | **Subcontracts** | **Miscellaneous** | **PR Total** | **Total Approval** |
| 2012 | 0.00 | 0.00 | 0.00 | 16,000.00 | | | 0.00 | 16,000.00 | 32,300.00 | 0.00 | 0.00 | 32,300.00 | 48,300.00 |
| 2013 | 9,860.00 | 2,350.00 | 6,500.00 | 0.00 | | | 0.00 | 18,710.00 | 31,500.00 | 0.00 | 0.00 | 31,500.00 | 50,210.00 |

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| **Footnote Approvals** | | | | |
| **Year** | **Experts** | **Meetings/Workshops** | **Fellowships** | **Scientific Visits** | | **Training Courses** | **HR Total** | **Equipment** | **Subcontracts** | **Miscellaneous** | **PR Total** | **Total Approval** |

**Experts**

| **Task** | **Task title/Participant Name** | **Nationality** | **Candidate approached** | **Submitted:s**  **Accepted:a** | **Withdrawn:w**  **Rejected:r** | **Start Date** | **End Date** | **Duration**  **(days)** |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**Meetings/Workshops**

| **Task** | **Task title/Participant Name** | **Nationality** | **Candidate approached** | **Submitted:s**  **Accepted:a** | **Withdrawn:w**  **Rejected:r** | **Start Date** | **End Date** | **Duration**  **(days)** | |  | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **9001** | **IRPA 13 Congress, Glasgow, Scotland** | | | | | | | | **Field: 6A** | |
|  | **Mission 01** JD Submitted: 2012-04-12 | | | | | | | | | |
|  | Duty Station : Glasgow( UK ) | | | | | | | | | |
|  | JURKOVIC, Slaven | CRO |  |  |  | 2012-05-14 | 2012-05-18 | 4 | |  | |
|  | FAJ, Dario | CRO |  |  |  | 2012-05-14 | 2012-05-18 | 4 | |  | |

**Fellowships**

| **No** | **Name** | | **Nominated** | **Awarded:a Non-awarded:n Withdrawn:w** | **Host Country** | **Type** | **Proposed:p Accepted:a Rejected:r** | **Anticipated Start Date** | **Start Date** | **End Date** | **Proposed Duration** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CRO13002** | **Ms. IVKOVIC, Ana** | | **2012-11-06** | **2013-01-29 a** | **AUS** | **I** | **2013-03-11 a** | **2013-05-01** | **2013-05-01** | **2013-05-31** | **00/100** |
| TC Field: | | Radiation Metrology and Dosimetry(6F)(CRO13002) | | | | | | | | | | |
| Training: | | The primary objective of fellowship is to see the design and practical implementation of QA programme in a advanced radiotherapy  department. She want to see how QA/QC processes are organized which equipment is being used for the purpose of QA/QC and the  qualification of personel working with that equipment. Also she is interested in treatment planning techniques and followup of the  patients that are on treatment.  The training requested is related to the IAEA's TC project entitled: Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy (Oracle Project Number:2060757)(CRO6010). | | | | | | | | | | |
| Host Institute(s): | | Landeskrankenhaus Salzburg; Landeskrankenhaus Salzburg; University Hospital of the Paracelsus Private Medical University; Institut für Radiotherapie und Radio-Onkologie, Salzburg | | | | | | | | | | |

**Scientific Visits**

| **No** | **Name** | | **Nominated** | **Awarded:a Non-awarded:n Withdrawn:w** | **Host Country** | **Type** | **Proposed:p Accepted:a Rejected:r** | **Anticipated Start Date** | **Start Date** | **End Date** | **Proposed Duration** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CRO13001** | **Mr. KASABASIC, Mladen** | | **2012-10-30** | **2012-11-20 a** | **GFR** | **I** | **2012-11-28 a** | **2013-04-08** | **2013-04-08** | **2013-04-12** | **00/7** |
| TC Field: | | Radiation Metrology and Dosimetry(6F)(CRO13001) | | | | | | | | | | |
| Training: | | SV for a period of one week in order to see the design and a practical implementation of QA programme in advanced  radiotherapy department. He is interested in the transition from 2D to 3D CRT and implementation of IMRT  The training requested is related to the IAEA's TC project entitled: Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy (Oracle Project Number:2060757)(CRO6010). | | | | | | | | | | |
| Host Institute(s): | | Universitätsklinikum Tübingen; Radiologische Klink, Tübingen | | | | | | | | | | |
| **CRO13018** | **Mr. FAJ, Dario** | | **2013-03-11** | **2013-05-17 a** | **SWE** | **I** | **2013-07-17 a** | **2013-10-14** | **2013-10-14** | **2013-10-25** | **00/14** |
| TC Field: | | Radiation Metrology and Dosimetry(6F)(CRO13018) | | | | | | | | | | |
| Training: | | Introduction to a comprehensive quality assurance program in an advanced radiotherapy centre.  The training requested is related to the IAEA's TC project entitled: Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy (Oracle Project Number:2060757)(CRO6010). | | | | | | | | | | |
| Host Institute(s): | | Lund University; Skane University Hospital, Lund | | | | | | | | | | |
| **CRO13019** | **Mr. JURKOVIC, Slaven** | | **2013-03-11** | **2013-05-17 a** | **SWE** | **I** | **2013-07-17 a** | **2013-10-14** | **2013-10-14** | **2013-10-25** | **00/14** |
| TC Field: | | Radiation Metrology and Dosimetry(6F)(CRO13019) | | | | | | | | | | |
| Training: | | Introduction to a comprehensive quality assurance program in an advanced radiotherapy centre.  The training requested is related to the IAEA's TC project entitled: Reinforcing and Further Developing a Quality Assurance/Quality Control Programme in Radiotherapy (Oracle Project Number:2060757)(CRO6010). | | | | | | | | | | |
| Host Institute(s): | | Lund University; Skane University Hospital, Lund | | | | | | | | | | |

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| **Training Courses** |

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| **Equipment** | | | | | | |
| **WP** | **PO Num** | | | **Total Value** | | **Order Date** | | **Status** | **Vendor Name** | **Vendor Location** | | |
| **Item** | **Quantity** | **Unit** | **Item Description** | | | | | | | | **Planed Shipping Date** | **Actual Shipping Date** | | **Delivery Date** |
|  | | | | |
|  | 201303916 | | |  | | 2013/07/26 | | APPROVED | CANBERRA PACKARD Central Europe GmbH |  | | |
| 1 | 1 | each | Dosimetry equipment as per attached offer. | | | | | | | | 2013/11/30 | 2013/11/19 | | 2013/11/19 |
|  | | | | |
|  | 201206503 | | |  | | 2012/12/12 | | APPROVED | EBSCO GmbH |  | | |
| 1 | 1 | each | ICRU Reports 62 | | | | | | | | 2012/12/21 | 2013/04/22 | | 2013/04/29 |
| 2 | 1 | each | ICRU Reports 64 | | | | | | | | 2012/12/21 | 2013/04/22 | | 2013/04/29 |
| 3 | 1 | each | ICRU Reports 85a | | | | | | | | 2012/12/21 | 2013/04/22 | | 2013/04/29 |
|  | | | | |
|  | 201300415 | | |  | | 2013/01/25 | | APPROVED | IBA DOSIMETRY GmbH |  | | |
| 1 | 1 | lot | Set of phantoms as follows : | | | | | | | | 2013/03/25 | 2013/03/25 | | 2014/01/13 |
|  | | | | |
|  | 201300708 | | |  | | 2013/02/12 | | APPROVED | CANBERRA PACKARD Central Europe GmbH |  | | |
| 1 | 1 | each | UNIDOS webline, Cat. T10022 | | | | | | | | 2013/05/25 | 2013/05/28 | | 2013/07/22 |
| 2 | 1 | each | QUICKCHECK webline w/o docking station, Cat. L981975. Transport and Handling Euro 180.00 included in the item's price. | | | | | | | | 2013/05/25 | 2013/05/28 | | 2013/07/22 |
|  | | | | |
|  | 201305082 | | |  | | 2013/09/25 | | APPROVED | CNMC Company Inc. |  | | |
| 1 | 1 | each | MINI CT QC PHANTOM | | | | | | | | 2013/11/30 | 2014/02/27 | | 2014/04/07 |
|  | | | | |
|  | 201206502 | | |  | | 2012/12/12 | | APPROVED | EBSCO GmbH |  | | |
| 1 | 1 | each | Measurement Quality Assurance for Ionizing Radiation Dosimetry (ICRU Report 76) | | | | | | | | 2012/12/21 | 2013/04/22 | | 2013/11/21 |
| 2 | 1 | each | Prescribing, Recording, and Reporting Intensity-Modulated Photon-Beam Therapy (IMRT)(ICRU Report 83) | | | | | | | | 2012/12/21 | 2013/04/22 | | 2013/11/21 |
|  | | | | |
|  | 201300282 | | |  | | 2013/01/21 | | APPROVED | Standard Imaging, Inc. |  | | |
| 1 | 1 | lot | QC3 phantom and PIPS Pro software as per attached offer. | | | | | | | | 2013/03/15 | 2013/02/11 | | 2014/01/13 |
|  | | | | |
|  | 201304372 | | |  | | 2013/08/22 | | APPROVED | CIRS Inc. |  | | |
| 1 | .072832641553763 | each | Dosimetry equipment as per attached offer . | | | | | | | | 2013/11/30 | 2013/11/12 | | 2014/01/13 |
| 1 | .927167358446237 | each | Dosimetry equipment as per attached offer . | | | | | | | | 2013/11/30 | 2013/11/12 | | 2014/01/13 |
|  | | | | |
|  | 201304623 | | |  | | 2013/09/04 | | APPROVED | CANBERRA PACKARD Central Europe GmbH |  | | |
| 1 | 1 | each | Dosimetry equipment as per attached offer. | | | | | | | | 2013/11/30 | 2013/11/19 | | 2014/01/13 |
|  | | | | |
|  | 201304626 | | |  | | 2013/09/04 | | APPROVED | IBA DOSIMETRY GmbH |  | | |
| 1 | 1 | each | Dosimetry equipment : | | | | | | | | 2013/10/30 | 2013/11/08 | | 2014/01/13 |
|  | | | | |
|  | 201305097 | | |  | | 2013/09/26 | | APPROVED | CNMC Company Inc. |  | | |
| 1 | 1 | each | MINI CT QC PHANTOM , Model 76-430. | | | | | | | | 2013/11/30 | 2014/01/21 | | 2014/02/05 |
|  | | | | |
|  | 201305099 | | |  | | 2013/09/26 | | APPROVED | CIRS Inc. |  | | |
| 1 | 1 | each | Dosimetry equipment as per attached quotation . | | | | | | | | 2013/11/30 | 2013/10/21 | | 2013/12/09 |
| **Sub-contracts** | | | | | | |
| **WP** | **PO Num** | | | **Total Value** | | **Order Date** | | **Status** | **Vendor Name** | **Vendor Location** | | |
| **Item** | **Quantity** | **Unit** | **Item Description** | | | | | | | | **Planed Shipping Date** | **Actual Shipping Date** | | **Delivery Date** |
| **Training Courses** | | | | | | |
| **WP** | **PO Num** | | | **Total Value** | | **Order Date** | | **Status** | **Vendor Name** | **Vendor Location** | | |
| **Item** | **Quantity** | **Unit** | **Item Description** | | | | | | | | **Planed Shipping Date** | **Actual Shipping Date** | | **Delivery Date** |
| **Others** | | | | | | |
| **WP** | **PO Num** | | | **Total Value** | | **Order Date** | | **Status** | **Vendor Name** | **Vendor Location** | | |
| **Item** | **Quantity** | **Unit** | **Item Description** | | | | | | | | **Planed Shipping Date** | **Actual Shipping Date** | | **Delivery Date** |
|  | | | | |
|  | FTS-35573 | | |  | | 2014/01/28 | | APPROVED | Region Skane |  | | |
| 1 | 1000 | each | SupplierNumber:31485|FAJ, MR.. Dario |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | A1301006-1525EUR | | |  | | 2013/02/05 | | APPROVED | American Express Services Europe Limited, Niederlassung Wien |  | | |
| 1 | 813.62 | each | 13ST01006|580117|KASABASIC, MR. MLADEN|Osijek (CRO) -Tuebingen (GFR) - Osijek ( | | | | | | | |  |  | |  |
|  | | | | |
|  | A1306578-1525EUR | | |  | | 2013/04/04 | | APPROVED | American Express Services Europe Limited, Niederlassung Wien |  | | |
| 1 | 761.87 | each | 13FT06578|576135|IVKOVIC, MS. ANA|Osijek (CRO) - Salzburg (AUS) - Osijek | | | | | | | |  |  | |  |
|  | | | | |
|  | A1311953-1525EUR | | |  | | 2013/09/11 | | APPROVED | American Express Services Europe Limited, Niederlassung Wien |  | | |
| 1 | 395.86 | each | 13ST11953|40628|FAJ, MR. DARIO|Zagreb (CRO) - Lund (SWE) - Zagreb (CR | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-23237 | | |  | | 2013/02/04 | | APPROVED | United Nations Development Program |  | | |
| 1 | 1924 | each | 1064238|KASABASIC, Mr. Mladen|Staff|DSA: GFR(Tübingen), 8 - 12 Apr 2013, 6 nights @ $304=$1824 Contingency, 1 country, $100 | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-30402 | | |  | | 2013/09/10 | | APPROVED | JURKOVIC, Mr Slaven |  | | |
| 1 | 3504 | each | SupplierNumber:17636|JURKOVIC, . Slaven |Non Staff | | | | | | | |  |  | |  |
| 2 | 665 | each | SupplierNumber:17636|JURKOVIC, . Slaven |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-23238 | | |  | | 2013/02/04 | | APPROVED | Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH |  | | |
| 1 | 650 | each | 1064238|KASABASIC, Mr. Mladen|Staff|Placement Fee | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-32353 | | |  | | 2013/10/23 | | APPROVED | Lund University; Skane University Hospital- Department of Clinical Physiology |  | | |
| 1 | 1000 | each | SupplierNumber:31485|FAJ, MR.. Dario |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-24997 | | |  | | 2013/04/04 | | APPROVED | United Nations Development Program |  | | |
| 1 | 3831 | each | SupplierNumber:47651| IVKOVIC, Ana |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-35575 | | |  | | 2014/01/28 | | APPROVED | Region Skane |  | | |
| 1 | 1000 | each | SupplierNumber:17636|JURKOVIC, MR.. Slaven |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | A1311954-1525EUR | | |  | | 2013/09/11 | | APPROVED | American Express Services Europe Limited, Niederlassung Wien |  | | |
| 1 | 395.86 | each | 13ST11954|19102|JURKOVIC, MR. SLAVEN|Zagreb (CRO) - Lund (SWE) - Zagreb (CR | | | | | | | |  |  | |  |
|  | | | | |
|  | EMS-14163 | | |  | | 2012/05/02 | | APPROVED | FAJ, Mr Dario |  | | |
| 1 | 2981 | each | 510703|FAJ, Mr. Dario |Staff|FAJ, Dario (Duty Travel Non Staff for TC Projects) | | | | | | | |  |  | |  |
|  | | | | |
|  | EMS-14164 | | |  | | 2012/05/02 | | APPROVED | JURKOVIC, Mr Slaven |  | | |
| 1 | 2981 | each | 71984|JURKOVIC, Mr. Slaven|Staff|JURKOVIC, (Duty Travel Non Staff for TC Projects) | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-30400 | | |  | | 2013/09/10 | | APPROVED | FAJ, Mr Dario |  | | |
| 1 | 4169 | each | SupplierNumber:31485| FAJ, Dario |Non Staff | | | | | | | |  |  | |  |
|  | | | | |
|  | FTS-32352 | | |  | | 2013/10/23 | | APPROVED | Lund University; Skane University Hospital- Department of Clinical Physiology |  | | |
| 1 | 1000 | each | SupplierNumber:17636|JURKOVIC, MR.. Slaven |Non Staff | | | | | | | |  |  | |  |