

2017 HICARE/IAEA Internship Report

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1 . Overview of Internship

Duration: 01/10/2017 – 31/12/2017

Dispatching agency: Hiroshima International Council for Health Care of the Radiation-exposed (HICARE)

Agency: International Atomic Energy Agency (IAEA)

Section: Department of Nuclear Sciences and Applications

Division of Human Health

Applied radiation Biology and Radiotherapy (ARBR)

Purpose: To develop human resources who understand the significance and necessity of health care of the radiation-exposed with a global perspective, and who successfully accomplish research activities in the field of the treatment of the radiation-exposed in Hiroshima Prefecture.

Thanks to the recommendations and aid I received from HICARE, I was able to work at the IAEA, located in Vienna, as an intern for three months. Since I had learned about the significance of radiotherapy in cancer treatment in class, I expected this would be a good opportunity to deepen my knowledge in this field and learn how the guidelines are formulated. This was the reason why I applied for the internship programme this time. During the internship, I performed many tasks, and the details of these are written below.

2. Activities during the internship

i . Survey about education of radiotherapy (Mass mailing)

Mr. Zubizarreta and an intern who was working before me were doing a survey to create a worldwide database of educational resources on radiotherapy. They had sent over 4000 emails to institutions in member countries all over the world and received about 400 replies. Mr.Zubizarreta gave me an opportunity to organize the replies in Excel sheet. We are still receiving replies, and I added each of them to the Excel file when we received them during my internship period.

ii . DIRAC data of Argentina update (comparison to ARN)

The IAEA creates and provides a database of facilities which have licenses for radiotherapy - The Directory of Radiotherapy Centres (DIRAC). And some countries have their own database like it. Mr. Rubio worked to renew the DIRAC data of Argentina and I compared DIRAC data to the data of The Argentina Nuclear Regulatory Authority (ARN) and checked whether or not there are any differences between them. It was hard to read for me because the data of ARN was written in Spanish, but thanks to Mr. Rubio's support, I was able to finish checking it.

iii . WORLD DATABANK downloading (data updating for ARBR)

The ARBR has a database with many indicators that was downloaded from The World Databank and it was last updated in 2013. The ARBR didn't have data after 2014. Mr. Rubio taught me how to download the data and how to organize it in Excel sheet and I collected all the data from 2014 to 2016 from the World Databank and submitted it to him.

iv . Supporting the research for the possibility of sustainable radiotherapy

Mr. Rubio worked on the possibility of sustainable radiotherapy. To assess possibilities for each member country, the numbers of physicians, nurses, midwives, and hospital beds are very important information. So I collected this data from 1960 to 2016 from the World Databank and organized it in Excel sheet. Because I had collected data from the World Databank before, it was not so hard to finish this task.

v . Supporting the survey for countries with low population density

Mr. Rubio also worked to find out the geographical disparities in accessibility to radiotherapy in high income countries. In a country with a large size or low population density, people do not have the advantage of receiving radiotherapy and it causes bad oncologic outcomes. I collected and organized historical population data in countries with low population densities and submitted it with a PowerPoint file. The experience of supporting this study was very helpful for me to understand the other study which I was involved in later because there was a strong relationship between them.

vi. Attending the 1st Research Coordinators Meeting (RCM) of the Coordinated Research Project (CRP)

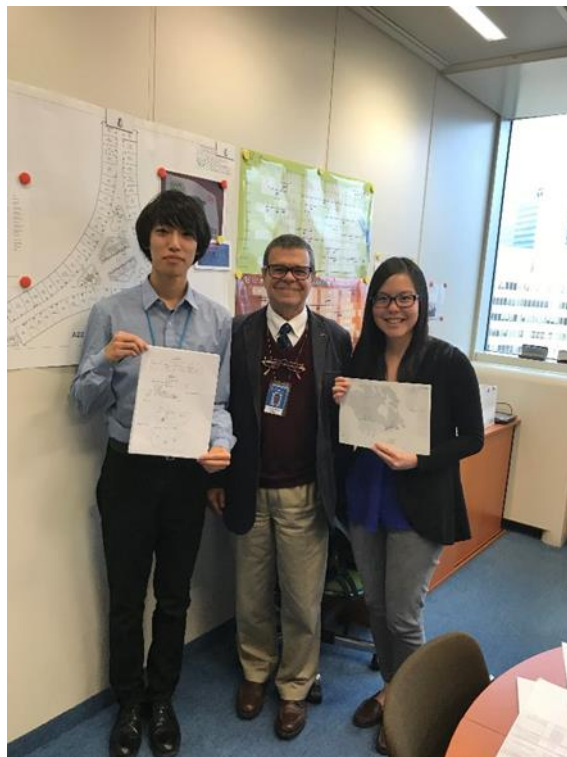
From 30 October to 3 November, there was an international meeting conducted by Mr. Belyakov regarding the Coordinated Research Project (CRP) on Applications of Biological Dosimetry Methods in Radiation Oncology, Nuclear Medicine, Diagnostic and Interventional Radiology. Mr. Belyakov let me attend it and I listened to some researchers making presentations. Because I didn't have a deep knowledge of this field, many of them were not easy for me to understand, but it was a very good opportunity to see how the international meetings were conducted and progressed. I found it interesting that the researchers were discussing not only new research or technologies, but also how to make people in developing countries gain access to the correct knowledge.

vii. Supporting the Bibliography

Ms. Fidarova was writing a paper about the relationship between radiotherapy and the quality of life of patients with glioblastoma and she gave me an opportunity to assist with the bibliography to finish it. Endnote was chosen to manage bibliographies and references in ARBR but it was my first time to use it, so I asked Mr. Belyakov to help me learn how to use it and he kindly accepted my request. Thanks to his support, I managed to collect references for the paper and submitted it to Ms. Fidarova.

viii. Assisting the research on radiotherapy in Canada

In November 2017, Ms. Chan, an intern from Canada, started a new project to uncover the existence of disparities in access to radiotherapy within Canada. Though I was not specialized in this field, she kindly let me take part in it and I supported the project for about two months. My main job was to collect data that could be helpful toward understanding the situation of radiotherapy in Canada and organizing it in Excel sheets. Participating in the project from the beginning, I was able to learn how they conducted the survey. While I was working on this project, we had a meeting every week to discuss how to proceed with the project and a lot of members of NAHU, including Mr. Zubizarreta, gave us many useful pieces of advice there. Since I had performed some tasks which were related to this study(√), I was able to participate in this project with a better understanding. This study will be reported by Ms. Chan at the Radiation Therapy Conference, which will be held in Toronto from March 2 - 3, 2018.



(Picture: With Ms. Chan. J and Mr. Zubuzarreta. E)

ix . Participating in the discussion for a new radiotherapy facility in Palestine

The staff of the ARBR section give member states advice and support on radiotherapy techniques and facilities every day. At the beginning of December, there was a discussion between the staff of ARBR and researchers from Jordan about building up a new radiotherapy facility in Palestine, which was a non-member state of NA. They were mainly discussing how much resources, including personnel, would be required and how much it would cost. Mr. Zubuzarreta showed me how he calculated the cost with a specific indicator. This was a good opportunity to learn how they were supporting the development of radiotherapy within member states and sometimes within non-member states.

x . Participating in a Section Meeting

The ARBR have section meetings every two weeks. All members could rarely gather in one place at the same time because they had their own work in other countries. They usually checked their schedules and upcoming meetings and shared what they were each working on. When they were to host a conference, they discussed how to conduct the conference, who to invite, where to hold it and what to discuss there.

(Picture: With the staffs of ARBR section except Mr. P. Rubio)



xi. Visiting the laboratory in Seibersdorf

Mr. Otsuka, a Japanese staff member of the Division of Physical and Chemical Sciences (NAPC) working as a nuclear data physicist, conducted a tour of the IAEA's laboratory in Seibersdorf for Japanese Interns and I attended it. The IAEA's Department of Nuclear Sciences and Applications owns 12 laboratories, with 1 in Vienna, 3 in Monaco and 8 in Seibersdorf, and they are a unique feature in the United Nations. The laboratories support and implement activities that respond to the developmental needs of Member States in a range of subject areas. We visited the Safeguards Laboratories which include the Environmental Sample Laboratory and the Nuclear Materials Laboratories, and the Nuclear Sciences and Applications Laboratories including the Plant Breeding and Genetics Laboratory and the Insect Pest Control Laboratory.



(Certificate of Internship)

3. Result of the internship

I experienced and learned a lot of things through the three-month internship at the IAEA. Working at the international organization, I was able to learn specifically what kind of tasks the staff performed, and how they contribute to international cooperation. In addition, by attending the international conferences, I was able to learn that many researchers are trying approaches to the development of radiotherapy in member states from various angles. During this stay, I talked to a lot of people and I was surprised that many of them spoke two or three languages besides English. The staff of ARBR were actively sharing their knowledge and experience with others and helping each other. Though I had little knowledge and experience, they kindly let me be involved in writing papers, performing research surveys, and so on. Through them, I was able to learn many things which will be very useful for my future. I really appreciate HICARE for giving me such a precious and fruitful opportunity.



(Picture: With all staffs of ARBR section in Mr. Zubizarreta's room)