

E. NOI FELLOWSHIP REPORT – LONG-TERM BENEFITS

NOI Fellowship Report concerning the evaluation of the long-term benefits must be sent no later than 12 months after the end of the fellowship to grant@noisk.sk. Specifically, indicate the scope of work during the fellowship in the report and highlight the achievement of goals together with the possibility of knowledge transfer for the Oncology in Slovakia.

NOI Grant with its assigned number must be acknowledged in all publications or presentations related to the fellowship results, and a citation of the publication or information about the conferences needs to be sent to grant@noisk.sk.

Name and titles of NOI Fellow:

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Contact Address of the Home Institution:

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NOI Fellowship Title and Objectives:

Oncologic intensive care in the treatment of germ cell tumors

NOI Fellowship Dates: 02/01/2022 – 03/31/2022

Contact Address of the Host Institution:

Indiana University Melvin and Bren Simon Comprehensive Cancer Center (SCC), 535 Barnhill Drive, Indianapolis, IN 46202; Indiana University Hospital, 550 N University Blvd, Indianapolis, IN 46202; IU Health Methodist Hospital, 1701 N Senate Blvd, Indianapolis, IN 46202

Overview of NOI Fellowship experience:

During my two-month internship in Indianapolis, USA, I had the unique opportunity to compare both the European and American systems of health care delivery to critically ill cancer patients. I had the opportunity to talk about these differences with local experts and discuss a possible application of some of these differences at home. Compared to our system, the USA's health care is highly compartmentalized. That means one patient is cared for during his or her stay in one ward by several doctors or assistants at the same time, each of whom specializes in different areas. These are, for example, pulmonary critical care, nephrologists managing continuous elimination methods (continuous dialysis), infectious diseases specialists managing antimicrobial therapy, respiratory therapists setting up artificial pulmonary ventilation, respiratory rehabilitation or airway clearance techniques in intubated patients, nutritionists setting up nutrition, etc. Health care at the National Cancer Institute in Bratislava, where I work, is devoted to the complex care of oncology patients and provides a variety of diagnostic and treatment options. In comparison to the USA, they are mostly provided within the same department and the same team of physicians who must be knowledgeable and up to date in multiple aspects of the provided medical care. However, because of this wide approach to patient care in Slovakia, I visited up to three hospitals and 7 departments within Indiana University Health network.

With the incredible help and guidance of my supervisor Dr. Roberto Machado, I was able to be a part of the following teams:

- Medical Intensive Care Unit (MICU)
- Cardiovascular Critical Care Unit (CVCC) and their ECMO team
- The anesthesia team in the central operating rooms of the University Hospital and Simon Comprehensive Cancer Centre (SCCC)
- The Acute Pain Service team (APS),
- Bronchoscopy Suite,
- Surgical ICU (SICU)
- The outpatient clinic and inpatient ward at SCCC.

Although the topic of my fellowship is Oncologic intensive care in the treatment of germ cell tumors, the knowledge, and skills I gained during this observership are applicable to a wide range of our patients.

In the MICU, I learned new ways of setting up artificial pulmonary ventilation in severe respiratory failure patients with ARDS or severe intra-alveolar hemorrhage. These skills are also applicable here, as we use the same pulmonary ventilators.

In the perioperative anesthesia management of cancer patients undergoing various surgeries is where I learned the most. During my time in the central operating rooms and with the APS anaesthesiology team, we compared acute pain management options. Correct and good analgesia reduces the risk of hypomobility and/or paralytic ileus, and speeds up recovery and the transfer of the patient from the ICU/ post-operative room to the ward. This reduces the duration of ICU stay, risk of nosocomial infections, postoperative delirium or other complications requiring prolonged hospitalization and thus increasing healthcare costs. The number of patients with epidural, non-opioid analgesia, or regional anesthesia is increasing in the National Oncology Centre in Bratislava. We compared the perioperative management of patients after chemotherapy during surgery, including pulmotoxic bleomycin therapy. In these patients, pulmo-protective ventilation with limited inspired oxygen fraction and fluid therapy is a standard also in our hospital.

ERAS (Enhanced Recovery After Surgery) protocols and options for non-invasive vital signs monitoring during surgery are gradually being adopted in our practice. In collaboration with oncologic surgeons and clinical oncologists, the patient's nutrition, rehabilitation, or analgesia can become more effective and can shorten the period in the ICU or a hospital stay. Prevention of PONV (postoperative nausea and vomiting) is a standard goal for every anesthetized patient.

We remain in contact with our American colleagues and contact them for any expert advice and guidance that we may need.

For example, we jointly evaluated one complicated case of a patient with a locally advanced germinative tumor, where the patient's only chance was a high-risk salvage surgery. Thanks to the joint multidisciplinary discussion, we chose the best course of action for the patient in accordance with evidence-based medicine and clinical experience.

Finally, I must point out that one of the great personal benefits of this internship, was an improvement in my medical English vocabulary.

Possible Knowledge Transfer for the Improvements in Oncology in Slovakia:

Intensive care medicine is a dynamic medical field, especially in oncology. I am incredibly honored to be able to experience American practice in this diverse field. I believe that traveling and getting to know other "medical cultures" significantly broadens our horizons and motivates us to continue to improve and achieve global standards. I had the opportunity to convey my enthusiasm through presentations of my experiences already at two domestic events. One was an institution-wide seminar and presentation at our National Cancer Institute, and the other was a poster at the conference "Oncology Days in Bratislava, the 59th annual meeting in 2022". I believe, that thanks to many small little steps every day, the highly efficient oncology care and multidisciplinary approach to the cancer patient will soon become a gold standard in every oncology department in Slovakia. One way could be motivating as many enthusiastic clinicians as possible, to travel abroad and to bring back not only knowledge but also a lot of good energy that Slovak healthcare so greatly needs.

Place and Date

In Bratislava, March 13th, 2023

Signature