EFOR FOUNDATION

Name:	Amit Sagi
E-mail address:	dramitsagi@gmail.com
Country of residence:	Israel
Country of visiting fellowship:	U.K
Name of the host:	Prof. Richard Field, South West London Elective Orthopaedic Centre
Dates of visiting fellowship:	10/2019-10/2020

Report about the outcome and economic result of the EFORT Foundation Visiting Fellowship

Expenses:

Travel: _3000__EUR
Accommodation: _45000_EUR
Other expenses: __50000_EUR

Topic	Please tick one of the boxes ☑ **1 (poor) to 5 (very good)** 1	2	3	4	5	**Your comments, thoughts, recommendations**
Education						
Could you improve your knowledge and gain a lot of new experiences?	☐	☐	☐	☐	X	SWLEOC and Prof. Field especially are inspiring. I expanded my knowledge significantly.
Host Department						
How was your communication with your host centre (regarding accommodation, programme, etc.)?	☐	☐	☐	☐	X	The Academic Surgical Unit in SWLEOC treated my exceptionally and tried their best to make my fellowship as meaningful as possible throughout this difficult time.
Did they offer you a social programme?	☐	☐	☐	☐	☐	I didn't need one.

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Final fellowship report

My name is Amit Sagi and I'm a 38 years old orthopaedic surgeon working in "Barzilai" Medical Centre in Ashkelon, Israel.
In October 2019, I came for a one-year fellowship programme sponsored by EFFORT at the "South West London Elective Orthopaedic Centre" (SWLEOC) under the guidance of Professor Richard Field. My wife, who is a radiologist, applied for a fellowship in neuroradiology in central London and we moved with our three children.
I applied for a fellowship under Prof. Field guidance because of his well-known reputation with treating various hip and knee conditions, and also because of his passion for research.
In addition, since I moved abroad with my entire family, living in London was a great bonus for all of us.
Obviously, as COVID-19 pandemic had a major effect on every aspect of our lives, it had a major effect on my training as well, and some of the paragraphs will be divided to "pre-COVID", "during the first wave" and "following the first wave".

Clinical activities and technical skills enhanced during the fellowship
Working under Prof. Field guidance, one of my major goals was to gain as much experience as possible with the anterior approach for hip replacement. In the "Pre-COVID" part of my fellowship (October 2019- end of March 2020) I was extremely busy with clinical and surgical work. I was able to attend each one of Prof's Field cases, private practice included, and as a result I gained a lot of exposure. During the first wave of COVID, SWLEOC became a COVID centre and from April until surgeries resumed in the beginning of July I was occupied by research. Once surgeries resumed, since I couldn't attend Prof. Field private cases anymore, I gained a lot of experience learning from other very well-known surgeons working in SWLEOC.
In addition to the anterior approach to the hip, I was privileged to assist Prof. Field in surgeries in which he used products that are in the pre-marketing stage such as new femoral stems or other surgical tools (some even designed by him). I also gained a lot of experience in other hip surgeries such as hip resurfacing, hip arthroscopy, soft-tissue reconstruction around the hip joint and revision total hip replacement. Non-operative clinical activities included hip and knee injections- from steroids in clinic to US guided hip PRP injections.
The clinical decision making for hip patients, from young adults to patients with metal-on-metal disease following hip resurfacing, from the approach to Femoro-acetabular impingement to referred pain- Prof Field is an inspiring surgeon and mentor and every outpatient clinic was a significant clinical experience.
I started assisting Prof. Filed once a week in outpatient clinic and now I'm doing 2.5 outpatient clinics a week myself. I also attended a weekly regional MDT meeting that enabled me exposure to clinical decisions of many different well-respected surgeons with different opinions and clinical approaches.

Additional clinical activities during my fellowship include two courses of wet-labs (with cadavers)- one for practicing knee arthroscopy and the other for the anterior approach to the hip, a suturing workshop, virtual course for research in Orthopaedics led by SWLEOC team, and others.

Scientific activities and theoretical knowledge gained during the fellowship
Prof. Field is the head of the research department in SWLEOC. He built an incredible database for outcomes of total hip and knee replacements with more than 40000 patients.

A significant part of my fellowship was dedicated to learning what the basic requirements are for establishing and maintaining such database as well as how to interrogate the database for specific research questions.
SWLEOC is the coordinating centre of 11 ODEP studies with a 10-year follow-up of the participating patients. I started with simple X-ray analysis and data cleaning in one project and I'm now able to assisst with data collection and entries in all studies.
From the database interrogation and ODEP studies I wrote a report about the two-year complication rate for the AMIStem (Medacta), and the five-year results of the Minihip stem (Corin).

Every Monday morning Prof. Field is leading the research meeting in SWLEOC. During those meetings we would review all active research projects, with weekly updates and reviews. During those meetings we would also made the surgical planning of the Academic Surgical Unit (ASU) with feedback and teaching sessions for the junior fellows.

Another major scientific project I led under Prof. Field's guidance concerned the MDT approach in orthopaedics. I wrote a systematic review about this topic that was submitted to one of the orthopaedic papers and also built a questionnaire signed by the heads of the orthopaedic hip & knee community in the UK to circulated between all members of the British Orthopaedic Association (BOA).
Unfortunately, due to the COVID pandemic, amendments to this very relevant paper and questionnaire are being done and I hope to complete this project soon.

The ASU employs junior fellows for data entries and as surgical assistants. Part of my role in SWLEOC was to be the link between the junior fellows and the ASU consultants. I was involved in most aspects of their work and training- from re-writing the application pack, to guide them with their X-ray analysis and their weekly presentations and I even established a teaching program with weekly sessions in basic concepts of orthopaedic surgery.

Stem-cell project- one of ASU main projects. Many orthopaedic practices offer stem-cell therapy as treatment option to various orthopaedic conditions, but little is known about the actual contents of those treatments. Assisting Mr. Vipin Asopa (of the ASU) to establish a research protocol for harvesting fat cells from patients going hip replacement, transferring the samples for analysis in a different university and being able financially support this project was a challenging mission from which I learnt a lot about how to conduct a study and how to apply for a grant.

AI project- in this project we use machine learning in order to try and predict failure of an implant on X-ray films before it is visible to the human eye. Although we get assistance from computer experts for the machine learning, collecting the data and uploading it for the analysis required some IT understanding or a prolonged, tiering data mining. I gained some basic coding abilities and subsequently saved 350 man-hours of manual transcription that were subjected to human errors with just a simple script. I than used this new ability for other research projects in SWLEOC.

Another important scientific experience occurred during the first wave of COVID-19. The Elective Orthopaedic Centre was transformed into a COVID-19 ICU ward starting the end of March and until beginning of July 2020. Since all orthopaedic activity was suddenly interrupted, the ASU collected data about the COVID-19 patients and created a massive database that contains all relevant patient information including their GP records. This experience of setting-up a proper database in this scale was a very complex process from which l learnt a lot. Once all data was gathered, I could use my new programming skills to sort and analyse the data. A paper regarding the effect of missed medical information due to lack of proper communication pathway between the GP and the A&E physician on COVID-19 patient outcome is being completed these days and other aspects of this database will also get interrogated and published.

Other projects

Greatnix, an Israeli start-up that deals with hospital resource-management made contact with me and together with Professor Diary Kader (SWLEOC deputy medical director), we are currently working with them in order to try and implement their technology in SWLEOC.

Automatic X-ray analysis- X-ray analysis is an integral part of SWLEOC surveillance studies. Currently X-rays are analysed by measuring angles and distances using a computer software. This process requires time and experience and is subjected to human errors as well as significant inter- and intra-observer variations. For those reasons, I made contact with a computer vision company trying to automize the x-ray measurements required for the analysis. This project will take 3 months to complete and will provide accurate, reproducible and automatic analysis of post-operative X-rays. Unfortunately, the costings at the moment are too high and I'm pursuing other options including self-developing.

Social aspects and reflections about the fellowship:

COVID-19 had a major effect on all aspects of life, especially socially. Nevertheless, the ASU and Prof. Field did their best to make me and my family feel as comfortable as possible, and after one year working in SWLEOC I feel an integral part of the team.

This last year was one of the most important and meaningful years I had I my career so far. I gained many expertise and skills- from the technical aspects of hip surgeries (mastering anterior hip replacement, getting familiar with hip arthroscopy) through the depth of research conduction and database establishment and maintenance and up to new fields of interest and development such as coding and programming.

Prof. Field is an amazing mentor and everyday working with him was a privilege. His willing to teach and supervise together with his ability to educate for leadership and broad thinking is admirable.

I know that contacts and connections I made during this time will continue to be an integral part of my professional life with open communication channel with opinion leaders in the field of arthroplasty and future joined projects that are being designed.

I wish to thank Prof. Field and the EFORT FOUNDATION for this amazing opportunity and I'm sure that this meaningful time will have a massive impact on my practice as well as on my workplace and my colleagues. I now feel much better prepared and confidant for the next step in my career and hope that I will keep getting similar support in the future so I could enhance my skills and contribute further to orthopaedic education and renovation in my local practice and in general.

Sincerely,
Amit Sagi