

Ichilov-Sourasky Hospital / Tel Aviv University Medical School, Israel

For my elective placement I spent four weeks shadowing different anaesthetists in Tel Aviv Sourasky Medical Centre, also known as Ichilov. I was under the supervision of Professor Carolyn Weiniger, the director of obstetric anaesthesia. The aims of my placement were to widen my clinical knowledge of anaesthesia, hone my skills, understand the path that trainee doctors follow in Israel and what it is like to practice there. I enjoyed my time in the department thoroughly. The team were engaging, encouraging and generous with their time. Throughout the entire surgical wing, teamwork and communication were prioritised, creating a well organised environment.

During my first week, I attended the monthly meeting that takes place between the anaesthetics and obstetric departments. The meetings had recently been introduced to increase communication between the two teams. The topic discussed was a recent case of uterine inversion and what could be learned from this case, how to manage similar cases and prevent them from occurring in the future.

The first cases I assisted in were surgeries to insert spinal electrodes to treat sciatica and the chronic pain associated with this condition. In the first case the electrode was inserted into the lumbar spine and, the second in the cervical spine. During induction I inserted a cannula successfully but also managed to spray antibiotics all over the sterile patient! This, along with letting half a bag of paracetamol spill onto the floor, were likely symptomatic of first day nerves, enabling me to learn from my mistakes very early! Later in the week I attempted intubation, but the airway was too difficult for me to proceed safely. Therefore I had to step back and observe. During the quiet moments in surgery, the resident anaesthetists would teach me about induction agents, paralytic drugs and their reversal, emergency drugs and analgesics. We had a detailed discussion about Suggamadex (an agent used to reverse steroidal non-depolarising neuromuscular blockers – rocuronium and vecuronium), a precious commodity within the theatres. The other cases during the week were general surgery including a strangulated hernia and a rectal prolapse.

Each Sunday, I would join my supervisor in the labour ward where all the gynaecological and obstetric surgeries would take place. I assisted in the anaesthesia of two Caesarean sections and an ovarian cyst drainage surgery. I was taught about the respiratory physiology of West zones, and their impact on alveolar pressure on pulmonary blood flow. This information was helpful as the following day I observed two lobectomies. The attending anaesthetist taught me about double lumen tubes and their use in pulmonary surgery. The adaptations that can be made to equipment to satisfy both surgeon and anaesthetist are very precise although not perfect; two double lumen tubes had a leak in them and needed replacing, preventing the patient from receiving adequate ventilation for a few minutes. The resident discussed the arterial oxygen content equation and the weighting of the different variables, for instance: haemoglobin concentration and oxygen saturation are more important variables than the partial pressure of oxygen.

The diagram shows the equation for arterial oxygen content (DO₂) with labels for each component:

$$DO_2 = CO \times ((1.39 \times [Hb] \times SaO_2) + (PaO_2 \times 0.03))$$

Labels and their corresponding variables in the equation:

- Rate of oxygen delivery in ml/min**: Points to the entire equation.
- Cardiac output in L/min**: Points to CO .
- Maximal oxygen-carrying capacity of the blood (ml/g of Hb): normally, 1.39ml/g**: Points to 1.39 .
- Concentration of haemoglobin in g/L**: Points to $[Hb]$.
- Percentage saturation of haemoglobin, expressed as a fraction (i.e. 97% would be 0.97)**: Points to SaO_2 .
- Solubility constant for oxygen at 37° - normally, 0.03ml/L/mmHg**: Points to 0.03 .
- Partial pressure of oxygen, in mmHg**: Points to PaO_2 .

In cardiac surgery I was able to see the extent to which doctors in Israel can specialise. Dr Shaylor, a specialist in cardiac anaesthetics demonstrated a profound knowledge of heart anatomy and physiology. She introduced me to cardiac anaesthesia, an area of medicine that I had not come across before. The operations I observed included two mitral valve clip insertions and thoracotomy for a mitral valve repair. This allowed me to experience the challenges of connecting a patient to bypass, something I had not observed before. Dr Shaylor also specialised in hepatectomies, which alongside cardiac surgery, seem to be the most anaesthetically demanding, especially after induction. These patients had the most dramatic haemodynamic changes throughout surgery, and this would require intense monitoring. Within these more intense surgeries, I was given an insight into the more stressful moments in theatre. These included: hypertension that would not respond to treatment, hypothermia and haemorrhage.

An aspect of the placement that made an impression on me, was the prevalence of victims of terror in Israel. One patient was due to have a hysterectomy and she was the victim of a terrorist attack over two decades ago. This impacted the anaesthesia of the patient in several ways. Skin grafts on her arms made cannulation very difficult, injuries to her spine made spinal anaesthetic too painful to continue and the patient had a very high level of anxiety throughout. She described her back problems and chronic pain as 'possibly psychosomatic' addressing the post-traumatic stress from which she is suffering. Treating a patient with a history of involvement in a terrorist attack is not something I had experienced before in the UK, and yet is culturally significant in Israel. The immediate understanding and empathy shown by the doctors was commendable. Going forward, I will make more effort to consider the interaction of physical and mental trauma that affect the patient within my approach to their care.

After my initial placement in anaesthesia the UK, I felt like I understood the basics of monitoring during surgery, what to look out for, and when to react. It was in Ichilov, I was taught about how we use monitoring to understand the physiology of what is happening to the patient. As the weeks passed, I became more comfortable in the operating theatres. I was trusted with more tasks, especially during the busier cases. This involved drawing up drugs, cannulating patients, managing airways, and preparing lines. I was trusted with extubation of a patient and the transport to the recovery room. It was daunting to be put in charge but important to experience one of the many roles of a qualified anaesthetist. I feel much more confident in my ability to cannulate both hands and feet and I also completed six successful intubations. The opportunity to develop my skills was something I relished, and this will hopefully transfer to my final year of medical school where I will be expected to assist more and achieve a higher level of competency in clinical skills. In summary, I feel extremely satisfied about how my elective unfolded. It was a fantastic experience which I will take lessons from for my future career. I have developed a deeper understanding of the intricacies of anaesthesia and many of its practical applications. I have been inspired by the many people I have met in many different fields and want to use the momentum gained from this moving forward into my final year of university.

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