# British Association of Dermatologists Elective/Project Prize Report

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My passion for dermatology began in my penultimate year of medical school when we first had proper exposure to the specialty. The visual nature of the pathology fascinated me, and the breadth of subspecialties and scope for multiple treatment modalities drew me towards it as a career choice. Witnessing the transformation of the lives of patients' with dermatological conditions - which often cause much more suffering than may initially meet the eye - brings a remarkable sense of satisfaction, and my experiences of the specialty so far have only enhanced the desire to spend my career as a dermatologist. I have found skin cancer particularly interesting, and therefore decided to spend my elective at the Melanoma Institute and the Royal Prince Alfred Hospital in Sydney, Australia.

The first part of my elective involved spending a month at the Melanoma Institute where I felt I would get exposure to cutting edge treatments and learn from the expert physicians and surgeons implementing them, followed by three weeks in the department of Dermatology at the Royal Prince Alfred Hospital where I would get some more general dermatology exposure.

My placement at the Melanoma Institute was primarily in surgical oncology, and I spent my time between clinics, ward-based activities, MDTs, and in theatre. The clinics were led mostly by general surgeons specialising in melanoma, which meant that I was exposed to a slightly different realm of melanoma management than that of a dermatologist, though there were certainly similarities. For example, I took an active role in mole clinics, examining patients who had typically had heavy exposure to the harsh Australian sun throughout their lives, using dermoscopy to visualise suspicious lesions, and presenting and discussing the patients with the consultants and registrars. I gained an appreciation for the vast number of benign lesions that exist, and also for suspicious looking lesions that would then go on to be excised for further investigation. I also spent a lot of time in theatre, where patients with invasive primary melanomas underwent sentinel lymph node biopsies as well as regional and

complete lymph node dissections. I was encouraged to take part in the operations wherever possible which I greatly appreciated and enjoyed, and in particular gained a lot of experience with suturing.

As well as getting involved with the surgical management of melanoma, it was fascinating to learn about the exciting developments that have been occurring in the medical management over the past few years. In metastatic melanoma, for which the development in its management had remained relatively static for many years, the introduction of targeted anticancer drugs have made a huge difference in 5 year survival rates. Approximately half of the patients with metastatic melanoma will have activating mutations in the BRAF gene, a proto-oncogene producing a protein called B-raf involved in the signal transduction pathways driving proliferation and inhibiting apoptosis. Uncontrolled proliferation of melanocytes can therefore occur when BRAF mutations exist, and this gene thus provides a unique pharmacological target for BRAF inhibitors such as vemurafenib or dabrafenib.

Flaherty *et al* in 2010 published the first study of BRAF inhibitors in metastatic melanoma, which looked at vemurafenib in patients with a more specific V600E-mutated melanoma, and showed that with this treatment 81% of patients had a complete or partial response[1]. Vemurafenib was compared to dacarbazine, an older alkylating chemotherapeutic agent used in metastatic melanoma treatment, in 675 randomised patients in a phase III trial in 2011. It was found that Vemurafenib improved both overall and progression-free survival, and improving median survival from 9 to 13.6 months[2].

Other proteins in the signal transduction pathways such as MEK (mitogen-activated protein kinase kinase 1) can be targeted, such as with the anti-MEK drug trametinib, which when coupled with a BRAF inhibitor improves progression-free survival as well as improving the side effect profile[3]. Immunotherapy with ipilimumab, a CTLA-4 inhibitor, has too shown to be efficacious in improving the prognosis in metastatic melanoma. Further therapies are currently being investigated such as phase III trials of nivolumab, a PD-1 antibody, which has created an exciting prospect for the management of a disease that has for many years had a bleak outlook for the patient, and a platform for ongoing research to build upon.

My time at the Melanoma Institute undoubtedly enhanced my knowledge and enthusiasm for skin cancer as a subspecialty. I also gained from the placement an appreciation of the scale of the multidisciplinary effort involved in melanoma management, with GPs,

dermatologists, general surgeons, immunologists, oncologists, palliative doctors, clinical nurse specialists and other allied health professionals all playing an important role. Whilst my initial project was unfortunately unable to be carried out when I started the placement, I hope to finish another project write up on brain metastases in melanoma and take that further under the supervision of the Melanoma Institute.

The department of Dermatology was a pleasure to work in for the second half of my elective. I attended clinics with Professor Stephen Lee and Dr Patricia Lowe, who were exceptional teachers and encouraged an active role in the department, giving me the opportunity to take lead consultations within my limitations, examine patients and undertake procedures such as excision biopsies and suturing. In particular I enjoyed performing basal cell carcinoma excision biopsies which were particularly satisfying and helped develop my surgical skills.

As well as seeing the more prevalent dermatological conditions, I was fortunate to gain exposure to some rare and interesting conditions such as Sézary Syndrome, a cutaneous T cell lymphoma which left the unfortunate patient erythrodermic with over 90% body coverage. The varied exposure enabled me to solidify my working knowledge of conditions I am more likely to see as a junior doctor, as well as gain insight into patients' experiences of less well known about conditions that can be extremely debilitating. The hands-on and inclusive approach that the dermatologists at the RPAH took left a lasting impression on me and I am extremely grateful to them.

I would like to sincerely thank the British Association of Dermatologists for awarding me this elective prize, as it has been vital in funding an expensive but highly rewarding seven week placement in Sydney which I feel has further established dermatology as the career choice for me.

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[1] Flaherty KT, Puzanov I, Kim KB, Ribas A, McArthur GA, Sosman JA, et al. Inhibition of mutated, activated BRAF in metastatic melanoma. *N Engl J Med* 2010;363:809-19.

[2] Chapman PB, Hauschild A, Robert C, Haanen JB, Ascierto P, Larkin J, et al. BRIM-3 Study Group . Improved survival with vemurafenib in melanoma with BRAF V600E mutation. *N Engl J Med* 2011;364:2507-16

[3] Atkinson V. Medical management of malignant melanoma. *Australian Prescriber* 2015;38(3):74-78.