

ELECTIVE (SSC5a/b) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

Elective Objectives SSC5c: Columbia

Objective 1: Describe the pattern of breast cancer in the USA and discuss this in the context of global health

Breast cancer is the most common cancer in women: both in the USA, and worldwide, accounting for 25% of all cancers in this group globally.¹ Incidence in the US has now stabilised at 122 per 100,000 population,² following a period of significant increase in the last few decades of the 20th century, and subsequent reduction in rates between 1998-2007.³ The cause of the rising trend seen in the US was multifactorial, but occurred in largest part due to increased detection by mammography screening programmes. The reduction in incidence seen in the early 21st century has been hypothesised to be as a result of screening saturation,⁴ and by others as a result of a decline in the use of HRT.⁵

Breast cancer incidence in the US varies with age and ethnic group. It is more common with increasing age but it has a bimodal distribution of 50 and 70 years.⁶ This mirrors global trends. Breast cancer occurs most frequently amongst non-Hispanic whites followed by African Americans however the latter group have the highest incidence below that age of 40.² Globally, breast cancer rates are highest amongst westernised countries, although developing countries are seeing a rise in incidence with a shift towards a Western lifestyle and increased life expectancy held accountable.⁸

Breast cancer is second to lung, as the leading cause of cancer death amongst women in the USA (21.5 versus 37 per 100,000), however the opposite is true when only considering women of Hispanic origin.⁷ Mortality rates have however declined since the late 1980's, particularly for women below the age of 50. Mortality from breast cancer is highest amongst African Americans with a rate of 32.4 per 100,000 compared to 23.9 per 100,000 in non-Hispanic whites.⁷ This may be in part related to the observation that triple negative disease is most common in this ethnic group.⁸ In contrast, mortality rates worldwide increased by 14% between 2008 and 2012.⁹

Objective 2: Describe the pattern of cancer care provision in the USA, and how does this compare with the UK.

In the UK, the government funded National Health Service (NHS) provides universal health care that is free at the point of access. Patients can also seek private medical care for their cancer treatment but this accounts for a minimal proportion of all cancer patients. Whilst there are clear benefits from such a system in terms of equal access to high standards of care irrespective of financial status, it does however mean that funds are finite and not all treatments available. The National Institute of Health and Clinical Excellence (NICE) makes evidence based recommendations using cost-benefit analysis on which treatments should be funded. The primary outcome measure in this analysis is the Quality-Adjusted Life Year (QALY) and typically this must not be in excess of £35,000. Diagnostics and treatment in cancer medicine are becoming ever-more sophisticated which invariably comes with a high price tag but also often modest results. This has resulted in non-recommendation in 32% of cancer drug appraisals. In response to this, the Cancer Drugs Fund was founded in 2010 in order to fund cancer drugs that are not available through the NHS. With increasing drug costs, a growing

population, and advances in early diagnosis, this fund too however is increasingly unable to meet demand

In contrast, in the US government-funded health care accounts for less than 1/3 and is accessible by specific population groups: Medicare for over 65s and Medicaid for low income groups. Depending on the demographics of the area, the proportion with private health insurance and public insurance can vary significantly. For those with private health insurance, additional payments termed “copays” may be required to cover costs not met by the policy. Furthermore, insurance may be contingent on continuing fulltime employment which may not be feasible during the course of the disease. There are state-dependent programmes that can provide financial assistance based on cancer type and patient criteria as well as grants that patients can access although these options are limited and unable to meet population level need.

Objective 3: Health related objective: Describe a clinical case that you found of particular interest.

A patient I met was of particular interest due to her unusual clinical history and the surgical treatment she received. The patient was a 46 year old caucasian lady with a prior history of invasive ductal carcinoma that was surgically treated 1 year previously. At this time she had a lesion on the right breast measuring 1.7cm at the 12 o'clock position that was ER+, PR+, Her2 equivocal and Ki67 40%. This was surgically removed by a right partial mastectomy and she also received sentinel lymph node biopsy and bilateral oncoplastic mastopexy. Histopathological analysis of the tumour revealed a high grade tumour with a Bloom and Richardson score of 9/9 and a high oncotype score of 37. Despite patient education and strong recommendation, the patient refused adjuvant radiation, chemotherapy and hormonal treatment, instead opting for lifestyle changes. This included switching to a vegan diet, exercise and a weight loss of 80 pounds. Unfortunately, a year on from her initial surgery, the patient noticed a mildly painful right breast mass at the 11 o'clock position adjacent to the areola, which on biopsy was found to be again an aggressive invasive ductal carcinoma. This was treated with a right total skin sparing mastectomy by the breast team and the plastic surgery team performed breast reconstruction using a deep inferior epigastric perforating flap. The procedure lasted 9 hours and involved 2 surgical teams and the use of microsurgery and intra-operative doppler to assess vascular supply to the graft.

Objective 4: To experience working as a medical student in a US health care setting and to develop new surgical and clinical skills and required for managing the surgical patient.

In the USA, medical students have a greater responsibility in the day-to-day care of patients managed by the service. This requires understanding of the patient's clinical pathway, foresight regarding tasks throughout the day and specific clinical bedside skills such as wound care management. Although these activities are relevant in the UK, there is a greater emphasis on history and examination, with the bulk of the medical student's day focused on clerking patients, in addition to performing ward jobs such as taking bloods and inserting cannulas.

A key personal learning objective on this placement was to increase my surgical experience, and in particular improve my surgical skills. The medical student in the USA is actively encouraged and expected to scrub into all operations, assist prepping the patient in the operating room, meet the patient pre-operatively and help transfer the patient post-operatively. By being involved in all of these stages, I have gained a better understanding of surgery, including the broader role of the surgeon beyond what happens during the time of operating. Even being involved in non-technical

tasks such as positioning the patient on the operating bed, attaching Flowtrons and setting up the Bair Hugger, was useful as this gave me responsibility within the team and an appreciation of the importance of the pre-operative preparation of the patient .

A particularly positive experience has been the development of surgical techniques which I have gained confidence in doing throughout my time at Columbia. I have learnt how to correctly hold surgical scissors, pick-ups and needle holders for maximum stability; how to correctly cut the suture depending on the site and type of stitch and in a way that reduces the likelihood of trauma to the surrounding tissue; and how to function as a competent assistant in terms of suctioning, opening the surgical field and lighting. I have also learnt how to do subcuticular and deep dermal suturing and surgical ties. I look forward to putting these skills to practice and improving them in the UK when I start work as a doctor in August.

References

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