Firstly, I would like to start off by thanking the Pathological Society for the generous travel bursary and extend my gratitude to Ms Julie Johnstone who was of assistance throughout.

I used the Pathological Society Travel & Conference bursary to attend the 2013 annual meeting of the American Society of Clinical Pathology (ASCP) in Chicago, Illinois from the 17th to the 22nd of September. The theme of the meeting this year was 'Beyond the Lab', essentially how pathology has a larger role to play in both clinical medicine and patient centred care (PCC). The opening session was addressed by the President of ASCP, Dr Joel Schilling MD, who emphasised the importance of collaboration between pathology and other fields of medicine and how pathology is a global initiative in disease prevention and integral in the emerging field of personalised medicine. The plenary session focused on bringing clinical pathologists into the clinic to promote the concept of the 'informed patient' in that they understand the tests that is being ordered and that more is not necessarily better. Another view was to ensure that healthcare is affordable and follow the 5R's (right patient, right tests, right drug, right time, right cost) and to move more care from the hospital to the community. Addressing the cost issue in the US it was estimated that 30 cents in every dollar spent on healthcare is wasted on duplication or the ordering of unnecessary tests. The concept of PCC was strongly supported so they knew the reason why the test was ordered and the relevance of these results.

Following these plenary sessions the specific clinical tracks opened which I chose the molecular pathology, histopathology and informatics schedule. The main scope of these tracks were the role of molecular diagnostics and pathology in the deliverance of personalised medicine. Interestingly the first talk was on 'College of American Pathologists EGFR and ALK mutation testing in NSCLC'. NSCLC is seen by many as the poster child for molecular oncology and personalised medicine, in that, just under a decade ago little was known about the molecular classification of these tumours. Fast forward 10 years and now we are aware of activating mutations of the EGFR gene and targeting them with small molecule inhibitors such as gefitinib or erlotinib, the presence of acquired sensitising mutations to these TKIs, ALK translocations and the relatively low frequency in NSCLC and the highly effective therapy, critzotinib. These successes emphasise the need for the molecular characterisation of a tumour. The next track which complimented my research area was a 3 hour class on 'Problematic areas of gastrointestinal neoplasms' which discussed the need for an accurate classification of polyp type and the implications these would have on therapy. Also the role of molecular pathology in therapeutic intervention was a central focus. This session included several interactive sessions in that the audience was encouraged to engage in the discussion. Concluding the session was ' Limited tissue samples in the era of personalised medicine' which emphasised the importance of i) adequate biopsy material being obtained ii) when faced with little tissue adopt the 'do more with less approach' in that if an H&E confirmed that a patient had adenocarcinoma of the lung then the reflex approach should immediately be EGFR testing. Also this session focused on how the role of molecular pathology has improved the classification of rarer conditions. The first day of ASCP was closed by Hilary Clinton who talked about global initiatives to make healthcare more affordable and available, and that even domestically people struggle to get the right treatment because of cost issues. However, once again she emphasised the role that clinical pathology and laboratory medicine has to play in the deliverance of an affordable, informative and world class healthcare system. The issue of the 'baby boom' was discussed in that, by 2040 healthcare spending in the US may exceed GDP, highlighting the need for a comprehensive and informative laboratory tests which is clinically relevant to the patient and that tests aren't ordered when they are not needed. Examples were included from a hospital in Texas who in the first 6 months of 2013 had saved $765,000 in the haematology/blood bank laboratory by engaging haem-pathologists, laboratory personnel and clinicians for the effective allocation of tests, blood and plasma transfusions. This session enabled the comparison with the current situation in the NHS that we are indeed faced with the challenge to do more with less.

The 2nd day of ASCP started with a 6.30 breakfast symposium focusing on the diagnosis of breast and gastric cancer with a specific focus on the role of HER2. The focal issue was HER2 heterogeneity and how we can overcome this, with the consensus being advanced methods for analysis such as image analysis which some companies in the US have adopted and indeed the FDA have cleared and approved HER2 image analysis algorithms. The session following this was echoing the CAP NSCLC guidelines as to sub-typing NSCLC histologies using both immunohistochemical and molecular profiling approaches to obtain a representative profile of the individual tumour. Interestingly the next session attracted a full audience, Digital Pathology: Live Telepathology. This session focused on the benefits whole slide scanning can be for research, collaboration, training and most of all diagnosing patients. Canada have adopted this approach (Ontario hospital given as the example). However, issues with the availability of patient data over the web seemed to divide the audience. The view was digital pathology is not a new concept per se as in the late 60s it was used in Chicago to analyse blood smears from landing tourists at O'Hare, indeed one my see digital pathology as the evolution of the microscope. The following general session once again highlighted that the need for pathology to be seen in front line medicine rather than an out of sight speciality will drive diagnostic and therapeutic decisions for the better. 3 focal points were in this session **i)** do more with less  (budget restrictions and tissue) **ii)** do less with more (informatics approaches) **iii)** more is more ( LIMS system has a vast quantity of data and how laboratory directors could set up a system in that requests and results are monitored to save money which could be used for other projects). This session led nicely into the next 3 hour session ' Apps in Pathology and Laboratory Medicine' which focused on the implementation of algorithms in a haematology laboratory in Texas and how a pathologist led laboratory system cut down on the duplication of tests, guided the clinician to the correct panel of tests for the patient and ultimately saving money.

The last full day of ASCP again focused on the role of the pathologist in personalised medicine, essentially as the director of treatment and the role pathology informatics has to in this era of medicine. Focusing on the practical aspects of molecular oncology testing focusing on KRAS mutations in CRC, EGFR mutations in NSCLC and BRAF mutations in melanoma. The technologies used to identify these mutations such as next generation sequencing and indeed the challenges faced with the implementation, interpretation and quality control of these evolving technologies in the diagnostic environment. Also the need for companion diagnostics in the era of personalised medicine. To conclude the day I presented a poster on my on-going research in metastatic colorectal cancer within the Centre for Cancer Research and Cell Biology, Queen's University Belfast.

I was fortunate enough to be 1 of 30 people selected to attend a Genomic Pathology Training workshop. The workshop was a unique opportunity to explore next-generation sequencing methods and multi-gene panels that are entering clinical practice. Regardless of specialty, genomic pathology will become an important part of pathology. Using a case-based, interactive small-group approach, workshop part we learnt principles related to the development of genomic assays and interpretation of results. The workshop also included practical hands-on instruction with the use of online genomic pathology tools.

Once again I would like to thank the Pathological Society for their support to attend ASCP which I found to echo the Society's motto 'Understanding disease".

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