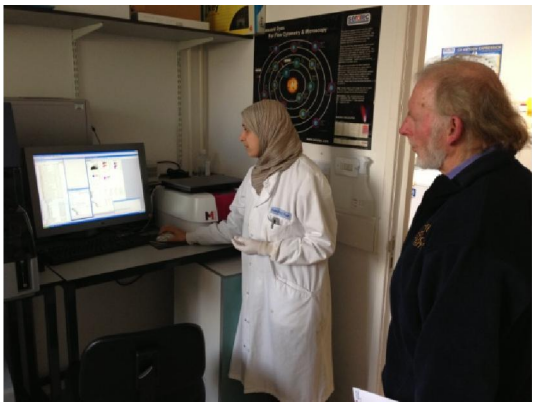
Lab Tour – Velindre Cancer Centre, Cardiff

Spider's Appeal – Supporting research to beat lung cancer

A lab tour to Velindre Cancer Centre to find out about the research into lung cancer being carried out by Jason Lester and his colleagues on 14th November 2013.

Professor Jason Lester's research: A novel approach to tailoring and improving radiotherapy treatment for lung cancer patients

Barry visited the Velindre NHS Trust, the specialist cancer hospital in Cardiff on 14th November 2013. He met Cancer Research UK funded researcher, Jason Lester and his colleagues who are experts in lung cancer research. Jason initially spoke to Barry about his work in non-small cell lung cancer, and after a delicious lunch, Barry had the opportunity to go into the research labs to see some of the equipment and techniques used in this research for himself. Barry looked at some lung cells in culture and also found out about flow cytometry, a lab technique used to separate and measure different cell types. The researchers heard about Barry and his dog Spider's, fundraising over the last ten years, and were inspired by his determination and dedication.



Jason Lester's Research:

Non-small cell lung cancer (NSCLC) accounts for more than eight out of ten lung cancer cases in the UK - that's around 36,600 people each year. And sadly, lung cancer survival remains low for all types with less than 10% of adult lung cancer patients surviving their cancer for five years or more.

Currently, doctors treat NSCLC patients with a combination of radiotherapy and chemotherapy. The radiotherapy dose that patients receive is the same, irrelevant of where the cancer is in the chest or how big it is. Following treatment the cancer still spreads to nearby tissues (local spread) in around a fifth of patients. We know that most cancer deaths are caused by spread so if we can improve the current treatment and stop cancer in it's tracks sooner, we could make a huge impact and help save thousands of lives. In addition, some patients (due to poor health) don't have the option of chemotherapy open to them. It may be that some patients could benefit from higher doses of radiotherapy but due to the potentially serious side effects, doctors need to be sure of who those patients are first.

NSCLC patients currently receive fixed and repeated doses of radiotherapy over 4 weeks. Professor Lester is developing a more tailored approach to giving patients radiotherapy. Part of the study involves determining the doses of radiation that healthy organs like the lungs, heart, spinal cord and oesophagus (foodpipe), which could be hit by the radiation beam used to treat the lung cancer, can tolerate. This damage to 'innocent bystanders' is what can cause the side effects of radiotherapy. Using this knowledge, patients are separated into different groups which receive gradually increasing doses of radiotherapy depending on what the previous results have shown they can tolerate.

Following the treatment, Professor Lester is assessing the maximum dose that patients can tolerate before the oesophagus is in danger of becoming seriously damaged. He will also assess any immediate or longer-term potential dangers to other organs such as the heart, spinal cord and lungs. Professor Lester is also determining if this treatment improves survival and if it reduces the likelihood of the cancer returning or spreading. He will then use what he learns from these studies to develop guidelines on the best ways to treat people in the future.

If successful, this research could lead to this novel approach to radiotherapy being implemented as the new standard of care for NSCLC patients. This could dramatically improve survival rates. It could ensure that patients are receiving a treatment which is more effective and suitable for them, reducing the side effects and improving their quality of life. It could also improve the odds for those people who can't benefit from chemotherapy.

Pictured above: Barry, Spider and Jason Lester outside the Velindre NHS Trust