



Industry Influencing Academia

Imperial College London

Adopting Industry Standards to increase efficiency and rigour in lab environments.

The team at Imperial College London's Department of Surgery and Cancer carries out cutting-edge research on breath analysis for cancer diagnosis. Given the innovative nature of their research, a set of standards applicable to that research did not yet exist. They recognised the need to ensure rigour, facilitate the commercialisation of the research and make it available to patients in a shorter time.

Looking to industry, Professor George Hanna realised that:

"we could replicate their stringent quality controls and consistency within our own university labs to deliver rigorous and trustworthy research"

Why is it important?

The Imperial team recognised effective quality management and quality control systems are essential to high quality and reproducible data from research, ensuring the research is well respected and accepted by industry. This facilitates regulatory approval by the Health Research Authority, and thus makes it quicker to develop solutions through to clinical trials, and ultimately to reach patients and have a positive impact within a shorter timeframe. Quality control measures will also improve reproducibility and hence, will reduce the number of unusable samples.

How were the lab standards created?

The research team visited various industry lab environments, where similar research was being carried out, to study the best infrastructures inside and outside of the medical field. Through this work, they learned how to best design and run a new state-of-the-art laboratory, incorporating and inspired by different systems and standards across industry.

Imperial's Department of Surgery and Cancer established two separate labs:

Clinical Lab - for rigorous, reproducible research, with all standards in place.

Experimental Lab - for cutting-edge tests and testing new methods and processes.



Three lab technicians from industry were added to the team to design the new quality control system and an automated management system for the clinical lab, ensuring that the lab met all of the necessary requirements specified by various regulatory bodies. This design process ensured that standard operating procedures, trials, documents and training were in place before applying for ISO accreditation.

“Acquiring analytical data for clinical trials means we need effective quality control measures in place for every aspect of our workflow. We have implemented new environmental controls, validated analytical methods and optimised protocols for every process we carry out in the measurement of breath based Volatile Organic Compounds (VOC).”

“It’s been very rewarding developing the Standard Operating Protocols (SOP), training lab members and troubleshooting any problems to result in a very polished workflow for targeted analysis of VOCs” - James Ellis, Senior Analytical Scientist

Benefits

Since the launch of the labs, the Imperial team says it has started to see benefits, such as:

- Greater number of patients from a clinical setting - estimated to be 30,000 in the next 5 years.
- Reduced number of duplicated studies at clinical trial - saving time, resources and money.
- Improved relations and trust between industry and academia.

“By having stringent quality controls at each step of the process, this means that when errors do occur, we can quickly identify and resolve the root cause of the issue. While increasing confidence in results, it also increases long term productivity which is essential for large clinical trials and translation into an industrial setting.” - Aaron Parker, Lab Manager and Senior Scientist
