Harriet Gliddon July 2015

Biochemical Society Outreach Grant: Bug Hunters

Event Report

Event overview

On 15th July 2015, six researchers from i-sense (www.i-sense.org.uk), an EPSRC Interdisciplinary Research Centre, visited Gunnersbury Catholic School in West London to run a half-day workshop entitled 'Bug Hunters'. Our aims were to introduce the students to our research, inspire them to pursue careers in science and understand their views on our work.

The audience for the event consisted of 25 A-level Biology students who were at a critical time in their school careers, as they were beginning to consider applying to university. Students had recently taken their AS-level exams and had just started their A-level work.

The focus of the event was infectious disease diagnostics, particularly how we can use the technologies the students use everyday - mobile phones, apps, social media - to diagnose diseases earlier than ever before. The subject in question was chosen due to its relevance to our research, its topical nature and its compatibility with the A-level curriculum.

"The experiments were new and different so they were very interesting."

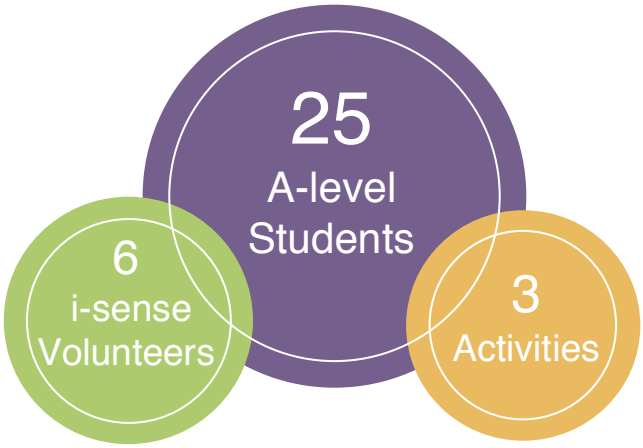
We first introduced ourselves and explained what we did on a day-to-day basis, our backgrounds and how the i-sense Centre is organized. We also emphasized our many different backgrounds and the interdisciplinary nature of our research.

After a very quick recap of infectious diseases and immunity, including the properties of antibodies, we moved on to the activities:

"The speakers explained the information really well!"

1. Infect Detect: Diagnosing disease using ELISA

This was an opportunity for the students to develop their practical skills. Students learnt the science behind the commonly used diagnostic test known as the enzyme-linked immunosorbent assay (ELISA) before carrying out a practical investigation in pairs. This was a technically demanding practical for the students, but they rose to the challenge and most pairs were successful in performing the assay.



2. Be your own doctor

Students were given a brief introduction to the threat of influenza and how this relates to our work. They were able to understand the importance of ease of use of point-of-care diagnostics, and grasped the concepts behind lateral flow assays. Students then tested mock patient samples for influenza A and influenza B using commercially available tests. They also experienced using mobile devices to read out their "diagnosis" in minutes using the app developed by researchers at i-sense. This was an important opportunity for the students to engage in current, ongoing research, learn about the growing role of technology for biological applications and appreciate that much of today's scientific research is extremely interdisciplinary.

3. Debate space and Wall of voices

This was our opportunity to get feedback from the students on what they thought of our work. We put a number of questions to the students about our research, including:

- Do you think that the presence of a global threat, e.g. an influenza pandemic, affects an individual's right to privacy?
- Are you more concerned about sharing your data for certain diseases/symptoms over others?
- What would you like to see from this research that would help you manage your own health?
- Do you feel your right to privacy is infringed through analysis of publicly available data?

The ELISA practical allowed students to experience running their own diagnostic test.

We pinned a few 'seed thoughts' to our wall of voices to get it started, but the students were really keen to express their views on our research. Some of the main concerns were related to who has access to medical records and how we can guarantee the safety of individuals' data.

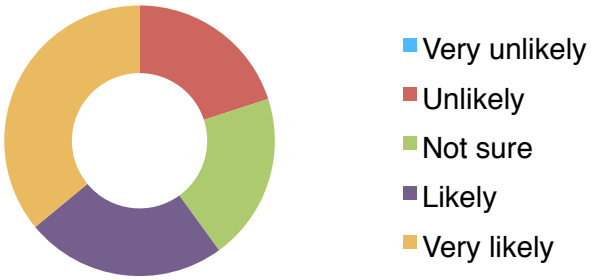
We finished the event with an open question and answer session, which was fascinating as we really got to see what was on the students' minds. There were many questions, ranging from the realities of a career in science, to sexually transmitted infections and the dangers of pandemic flu.

Did we achieve our aims?
The event was successful because it was very interactive and hands on. We managed to make it very relevant to the molecular biosciences and a number of students mentioned an interest in studying biochemistry-related subjects at university.

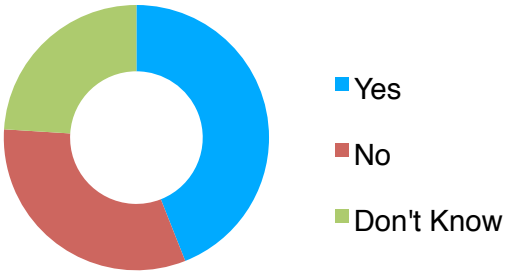
"It has made me more interesting in learning more about medicine and science."

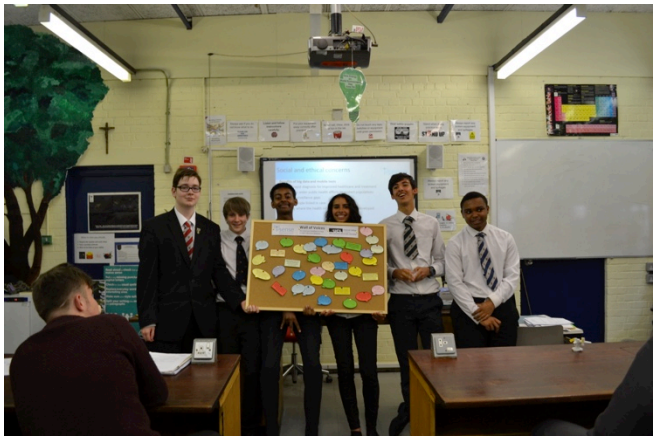
The organization and structure of the workshop seemed to work well and we gained useful insights into the public's perception of our research. Although we gave quite a thorough explanation of our current research, one student picked up on the fact that we hadn't really mentioned our future research plans, mentioning it in his/her evaluation form. This is quite interesting, considering many of these students are keen to pursue a career in science research and are probably very interested in the direction this research takes.

How likely are you to pursue further study/a career in science?



Have today's activities helped shape your thoughts on pursuing further study/a career in science?





The wall of voices allowed the students to express their own thoughts, ideas or concerns about our research.

Who benefitted and how?
I personally benefitted from this grant in a number of ways. It allowed me to plan an outreach event that brought researchers together from two different institutions, Imperial College and UCL. It allowed me to further my links with the school and develop my leadership, communication and teamwork skills. I also valued the opportunity to put together questionnaires for the students, which were later used for evaluation of the event.

The i-sense researchers who took part in the event would have benefitted from having an opportunity to take part in outreach and inspire the next generation of scientists. Our work and the i-sense Centre at large will benefit from the event by gaining a deeper understanding of the public's views concerning our research.

The students will have benefitted by gaining a deeper understanding of infectious diseases research. They also had the opportunity to get a clearer picture of what life as a researcher is like. This may help to encourage them to apply to study science-based subjects at university, or at least find out more about careers in the science.

Looking to the future
We now have the tools and know-how in place to run this event again in other schools. We will also make the details available to other researchers within the i-sense IRC in order to run the event at schools in other parts of the country.

Acknowledgements
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