e-Bug: A Resource for Schools and General Practitioners

e-Bug is a Europe-wide education resource that aims to improve young people's understanding of the importance of hand and respiratory hygiene and responsible antibiotic use. The programme also includes modules on epidemiology of sexually transmitted infections, vaccine efficacy and food hygiene. While the programme is primarily aimed at school settings, much of the online content, home activities and other resources are suitable for use in general practice surgeries, and for health promotion activities in the home.

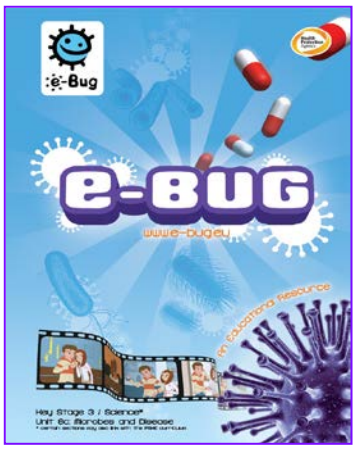
What is e-Bug?

e-Bug is a Europe-wide project, originally sponsored by the European Commission (DG SANCO), and now supported by the European Centre for Disease Control (ECDC) and the UK Health Protection Agency (HPA). e-Bug has produced an antibiotic and hygiene education pack for schools across Europe, involving 18 partner countries (including Ireland). An educational pack containing fun lesson plans and activities is accompanied by a website hosting lesson plans and complementary games for young people and their families to play in the classroom or at home.

The e-Bug pack, website and games have been translated into all EU official languages (including Irish), and are individualised for each country with regards to curriculum links, cross curricular capabilities, and key health messages. The programme consists of a schools' resource pack covering microbes, the spread and prevention of infection, antibiotic use and antibiotic resistance. The pack is accompanied by a website hosting the pack and additional materials and interactive games which allow children to learn while having fun.

e-Bug comprises a series of modules and individual lessons designed for primary (target age 9-11) and post-primary (target age 13-15) school children. Each module is supported by lesson plans, interactive material for students and classroom activities. The classroom and home activities are designed to be easy to carry out and use readily available household materials.

The primary school pack features cartoon microbes and children of the appropriate age. The e-Bug primary school pack cover features the logo, the child characters Harry and Amy, and the microbe characters penicillium, lactobacillus, dermatophyte, staphylococcus and influenza



The post-primary school pack was designed as an evolution of the primary school pack where the characters have grown up and the microbes are more realistic. The graphic design and layout of the pack have a more adult feel and the activities are more factual and research based.

e-Bug will be promoted in schools in Ireland over the coming year, and through teacher representative organisations.

All of the e-Bug classroom and interactive materials can be viewed at www.e-bug.eu.

Some of the Benefits of e-Bug Include:

Antibiotic use

Resistance to antibiotics is recognised worldwide as a major threat to public health, including here in Ireland. Much of this is driven by antibiotic use in the community, and antibiotic prescription rates in children in Ireland are higher than in adults (as is also the case in many other European countries). A 2007 UK survey showed that 16-24 year olds had very poor knowledge of antibiotics, compared to other age groups. An individual's consulting behaviour and personal attitude to antibiotic use is probably shaped early when they are taken to their doctor during childhood and adolescence. Therefore teaching young people about the role of antibiotics and microbes in schools may help to shape these attitudes, and ensure that our future generation will only use antibiotics when appropriate.

Hand and respiratory hygiene

Experience with the 2009 influenza A (H1N1) pandemic illustrated the importance of ensuring a good understanding of the importance of hand and respiratory hygiene among the general public. Targeting school children, who are the age group with the highest influenza attack rate, helps to limit the transmission of influenza, and other respiratory viruses, in the community. Hand hygiene compliance after toilet use among children declines from 100% in preschoolers (who are accompanied and instructed to wash their hands) to 80% for primary school students and 40% for post-primary students. Numerous studies have shown that promotion of effective hand hygiene in schools reduces absenteeism due to respiratory and gastrointestinal infections among school children.

Vaccine efficacy and sexual health

The modules on vaccine efficacy and sexual health can help to promote the uptake of the HPV vaccine, and also promote the uptake of other vaccines that may be introduced during teenage or young adult years. The incidence of sexually transmitted infections is rising, and the highest disease burden for genital chlamydia infection is among 16-19 year old women. The sexual health module helps post-primary students to understand how readily sexually

transmitted infections can be spread, through a simple classroom experiment using water and starch.

The Core Modules in e-Bug Comprise:

Micro-Organisms

1.1 An Introduction: Students learn about the different types, shapes and sizes of microbes – bacteria, virus and fungi, and where microbes are found.

1.2 Good Microbes: Students learn that microbes can be beneficial through a yeast or yogurt making experiment.

1.3 Bad Microbes: Close examination of various illnesses illustrates to students how and where bad microbes cause disease.

Spread of Infection

2.1 Hand Hygiene: Through a classroom experiment students learn how microbes can spread from one person to another through touch and why it is important to wash hands properly.

2.2 Respiratory Hygiene: In this fun experiment students recreate a giant sneeze to learn how easily microbes can be spread through coughs and sneezes.

2.3 Food Hygiene: Primary school children make a simulated chicken salad (using sponges and crepe paper) for their classmates and observe just how far they have spread bad microbes.

2.3 Sexual Transmission: Post-primary school students carry out an experiment (using water and starch) to observe how easily many people can become infected by unprotected sexual intercourse.

Prevention of Infection

3.1 The Body's Natural Defences: Presentations and animations are used to show how the body fights harmful microbes on a daily basis.

3.2 Vaccinations: Students use their reading comprehension and creative skills to answer questions on and act out the discovery of vaccinations.

Treatment of Infection

4.1 Antibiotic Use: Through teacher-lead discussion and debate, and experiments in post-primary schools, students learn the importance of using antibiotics and other medicines appropriately.

In addition to the core modules for school students, the e-Bug website also provides materials around specific topics, such as:

- A very useful document for teenagers on the risks of chlamydia infection, and how to deal with common dilemmas around sexual health decisions.

- Guidance for hygiene on farms and petting zoos.

Younger children can play interactive games on the website where they can try to “stop a sneeze”, learn about hand, food and farm hygiene, or compete in a quiz show-themed game. Older children and teenagers can play similar interactive games, including a first person perspective “CSI”- type game where they investigate the source of different infections.

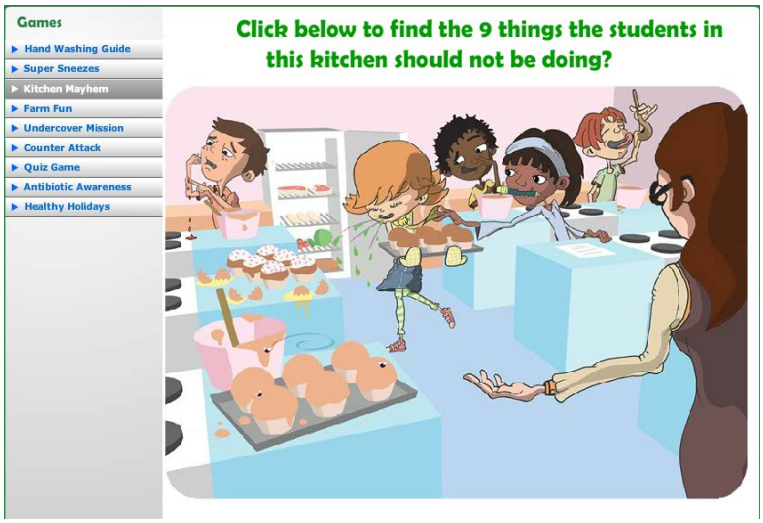
Screen shots of some of the e-Bug website games are shown at the end of this article.

How Can GPs Use e-Bug?

All of the e-Bug materials are free to access and download from the e-Bug website (www.e-bug.eu), and are available in English and Irish. Some of the ways that e-Bug can be a valuable resource for GPs include:

- Providing materials for use by children in waiting rooms, such as colouring pages, quizzes, cartoons and background information on microbes and infections
- Providing web access to e-Bug online games in the waiting room
- Using e-Bug materials when delivering health promotion activities or presentations in schools
- Using e-Bug to highlight key health promotion dates, such as European Immunisation Week (20-27 April 2013), Global Hand Hygiene Awareness Day (May 5 each year) or European Antibiotic Awareness Day (November 18 each year)
- Encouraging parents and children to access the e-Bug website and use the activities and games to promote hygiene in the home
- Provide educational materials on specific topics, such as sexual health and farm hygiene

Screen Shots of e-Bug Online Games Designed for Primary School Students



Screen Shots of e-Bug Online Games Designed for Post-Primary School Students