



e-Bug: Preliminary Data from the Pack Evaluation

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Background Information

Antimicrobial resistance remains one of the key problems within community and hospital settings in Europe.

Over 50% of adults still believe that antibiotics work on coughs and colds. To reduce expectations for antibiotics in the long term we need to change the behaviour of our future generation of adults – our children.

e-Bug, an educational resource pack and accompanying website, sponsored by DG-SANCO of the European Commission and involving 18 EU countries, was designed to enhance student knowledge at primary and secondary school levels on four key areas:

- Introduction to Microbes
- Transfer of Infection
- Treatment of Infection
- Prevention of Infection

Study Aim

To measure the effectiveness of the e-Bug pack in improving children's knowledge on the topics outlined above when used within the National Curriculum in England, France and the Czech Republic.



Methodology

Teaching, using the e-Bug pack, was given by junior and senior school teachers.

A minimum sample of 151 students from both age groups completed each of the questionnaires in a range of schools.

Quantitative questionnaires were completed by all students, at three different time points, to assess student knowledge

- Baseline (immediately before pack use)
- Knowledge Change (immediately after pack use)
- Knowledge Retention (6 weeks after pack use)

Qualitative data was obtained via

- Teacher focus groups
- Qualitative teacher questionnaire on each topic
- Qualitative student questionnaire on each topic

Junior Pack Results

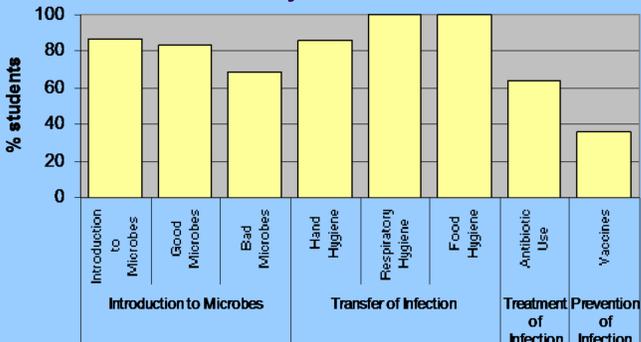
Quantitative Data Overview

Topics	% Correct before	% Correct after	% Improvement score	p value
Micro organisms	51	86	35 (30, 39)	<0.001
Good / Bad Microbes	48	86	36 (32, 40)	<0.001
Spread of Infection	79	90	9.6 (7, 13)	<0.001
Treatment and Prevention	34	52	16 (11, 20)	<0.001

Children's knowledge improved in all topic areas.

Qualitative Data Overview

Percentage of junior school students questioned who rated the activity ≥ 3 in a scale of 1 - 5



Senior Pack Results

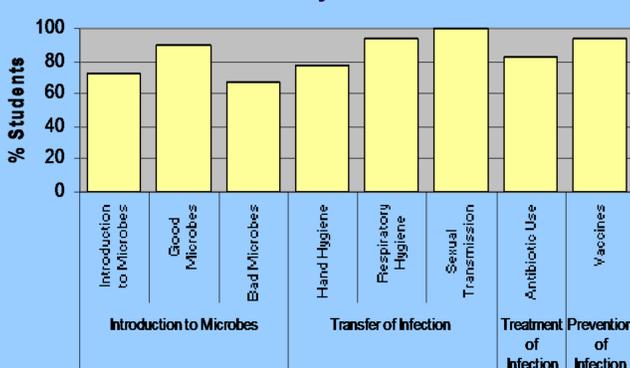
Quantitative Data Overview

Topics	% Correct before	% Correct after	% Improvement score	p value
Micro organisms	50	63	17 (14, 21)	<0.001
Spread of Infection	68	83	19 (15, 23)	<0.001
Treatment and Prevention	29	51	27 (23, 31)	<0.001

Children's knowledge improved in all topic areas.

Qualitative Data Overview

Percentage of students of senior school questioned who rated the activity ≥ 3 in a scale of 1 - 5



Student comments

I didn't like finishing the lesson
Junior, Food

I don't like knowing that there are microbes in your body
Junior, Good Microbes

I didn't know microbes were alive!
Junior, Introduction

I liked being able to visualise the microbes
Senior, Hand Hygiene

Finally explained WHY it's important to have safe sex, it's not just about getting pregnant
Senior, STI

I liked researching the different topics
Senior, Bad Microbes

I really enjoyed learning how and why things happen
Senior, Antibiotic Resistance

Summary

Students in both age groups preferred the Transfer of Infection sections of the pack as these were more interactive 'hands on' activities.

Antibiotic Use and Vaccines were the least liked by students as these followed a more class discussion/comprehension format.

Photocopying student sheets in the pack was disliked due to high costs however teachers found the whiteboard presentations very useful.

Teachers felt that the provision of more electron microscope images of the microbes on the web would make this section of the curriculum more realistic for the students.

The STI activity was the only activity liked 100% by both students and teachers.

Students and teachers generally preferred the more 'hands on' approach to lessons in the pack.

Group work activities were preferred by the majority of schools.

The incorporation of more IT (i.e. the option to enter graph results online) would be welcomed by the majority of schools.

The Treatment and Prevention of Infection sections of the pack were an issue for both the junior and senior schools.

All teachers liked the inclusion of background information for the teachers although some would have liked more detail.

Teachers would prefer the overall pack to be more differentiated thereby suiting a range of learning abilities.

Conclusion

Although the draft pack can be viewed as a success there is a need to modify various sections of both resources to make them more appealing.

Required pack modifications will include

- Provide links to junior pack for lower ability Senior school classes
- Include more video clips and images
- Suggest activities be done in groups or pairs
- Include more explanations for students i.e. why do things happen!
- Provide more ICT resources
- Advise teachers to be more involved
- Suggest explanations of how to present practical activities

The data from this evaluation will be used to modify the packs further, ready for translation into a variety of European languages in January 2009.



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