Evaluation Strategy Version 010607

Work package 3: Evaluation of the project

Work package 3 comprises the evaluation of all the components of e-Bug – this can be divided into two major activities.

1. Evaluation of the e-Bug project processes
   2. Evaluation of the outputs of the e-Bug project.

1. EVALUATION OF E-BUG PROJECT PROCESSES

Overall monitoring and evaluation of the project in terms of each work package and its completion, meeting of milestones and deliverables. This will be achieved through:

a. Progress monitoring by the project coordinator at teleconferences and meetings.

b. Audit committee meetings, chaired by Prof Herman Goossens at 3, 12, 21, 36 and 39 months and by teleconference at 30 months. A progress report will be submitted to this committee. They will report back any concerns to the steering committee and EU Commission.

c. Minutes of meeting of steering group (month 39) where the final evaluation report will be discussed.

2. EVALUATION OF E-BUG PRODUCTS

The proposal for e-Bug commits the partners to the evaluation of the use, satisfaction and impact of the pack and the website in 3 countries. (Which countries to be agreed with Associated Partners)

“The ease of use and impact of the pack on children’s knowledge will be assessed in three associated partner countries by questionnaire and focus groups.”

“There will be a report on ease of accessibility and impact of the website.”

The timetable within the original proposal is for:


b. Questionnaire for evaluation of pack and website (month 29)

c. Report on evaluation of pack and website (month 36)

d. Plans for visiting teachers and/or schools to discuss evaluation (month 29).

e. Report on evaluation (carried out months 27-39).

It has been decided to bring this timetable forward where possible, as early evaluation may allow improvements to the pack addressing user expectations and in response to the evaluation before the final launch in all European countries. The first stage would be to identify schools during the research period which would participate in validated questionnaires about the Pack and Website and be involved in teacher focus groups.
2.1. Pack Evaluation

The ease of use and impact of the pack on children’s knowledge will be assessed in at least three associated partner countries by use of a validated questionnaire directed at the users, children and teachers, and focus groups with teachers. The schools involved will be identified during the research period, ideally these will be include schools in a variety of areas (urban, rural, deprived, not deprived) and in areas of high antibiotic use. Schools should be approached via the Department of Education or local science advisors depending on the country and what research shows is most appropriate.

The evaluation of the pack and the website will guide modification and improvement to better meet user expectations.

A final report will be produced summarizing the findings in 3 countries and this will be presented at the 36 month dissemination meeting.

2.1.1. Milestones (Original)

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month 22</td>
<td>evaluation plan for the project</td>
</tr>
<tr>
<td>Month 33</td>
<td>report on pack and website development in 3 countries</td>
</tr>
<tr>
<td>Month 36</td>
<td>modifications to pack and website if required</td>
</tr>
<tr>
<td>Month 39</td>
<td>final evaluation of the project</td>
</tr>
</tbody>
</table>

2.1.2. Deliverables

D5 - Pack Evaluation

D6 - Web site Evaluation

D7 - Modifications of the pack and website

- Feeds into D8 - Launch and D10 - final evaluation report
- Feeds into WP2 - Dissemination of the results.

D10 - The final evaluation report will cover all work packages and deliverables.

2.1.3. Methods

The Packs will be evaluated in three areas

- Use, Satisfaction and Impact; in the two key populations,
- Children and Teachers.

A range of methods will be used in the two groups as shown below.
<table>
<thead>
<tr>
<th>Children</th>
<th>Use</th>
<th>Satisfaction</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack</td>
<td>Numbers of Packs Distributed</td>
<td>Likert or VAS scale for satisfaction</td>
<td>Likert or VAS scale investigation of change in knowledge and attitude</td>
</tr>
<tr>
<td></td>
<td>% children remembering receiving pack</td>
<td>Focus Group</td>
<td>Focus Group</td>
</tr>
<tr>
<td></td>
<td>Focus Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td>Use</td>
<td>Satisfaction</td>
<td>Impact</td>
</tr>
<tr>
<td>Pack</td>
<td>Numbers of Packs Distributed</td>
<td>Likert or VAS scale for satisfaction</td>
<td>Likert or VAS scale investigation of change in knowledge and attitude</td>
</tr>
<tr>
<td></td>
<td>% teachers remembering receiving pack</td>
<td>Focus Group</td>
<td>Focus Group</td>
</tr>
<tr>
<td></td>
<td>Focus Group</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.1.4. **Study Design**

The study design may need to vary between countries, however we will endeavour to minimise such variations.

The same questionnaire would be used for all, with the same data entry system of recording results. Analysis would be done centrally in the UK and it may also be possible to organise for data entry to be done in the UK.

Each country should endeavour to do a before and after study with controls. This may not always be possible.

The aim of the study is to determine if there is evidence that the packs:

a. Improve knowledge about bacteria and the use of antibiotics
b. Change attitudes to the use of antibiotics
c. Are acceptable to use.

The intervention age would be 9-11 years (or maybe 12-14 years depending on the country) and 14-15/16 years.

The confounding factors are likely to be the academic standard of the school and the social class of children; hence the importance of a cross-section of schools.

2.1.5. **Intervention Schools**

Intervention schools should ideally be chosen to represent a range of pupil ages and School types.

School Types: It is likely that the main confounders will be the academic nature of the school and the social class of children. Children from advantaged backgrounds and those in more academic schools are more likely to be aware of the nature of bacteria and the role of antibiotics.
School types should be selected to represent a range of different schools for each age band.

However it is recognised that it may prove logistically difficult to identify and carry out the intervention in a wide range of School types for both age ranges. Therefore if only a limited selection of schools is to be selected these should ideally be from those schools where there are children with a lower level of understanding and where there is a high level of antimicrobial prescribing. These are likely to be less academic schools serving more deprived areas. It may prove easiest to limit the study to a predefined geographical area.

The schools should comprise a cross-section of urban, rural, deprived and not deprived schools and some should also be from areas with recognised high antibiotic use.

In the UK it has been agreed to look at clusters in the South West Region and London, (and possibly in Scotland and Northern Ireland), which provide examples from all the above and are feasible for the UK operation to cover.

The UK regions identified provide a typical example of the UK population and it was agreed that a similar approach should be taken in CZ and FR i.e. the local area in the vicinity of the participating institution and if possible one other area of a different demographic make-up. It was therefore agreed that FR would look at the southern region around Nice, and maybe Lille, where antibiotic use and antibiotic resistance is greatest. For CZ the regions would be Prague and if possible Moravia, which would provide a significant contrast.

Power calculations suggest that for each age group the sample size required will be approx 150 children in intervention and 150 children in the control groups assuming 15% performance change.

Sub group analysis may be possible if larger numbers of children are seen.

<table>
<thead>
<tr>
<th>Significance Level (alpha):</th>
<th>0.05</th>
<th>(Usually 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (% chance of detecting):</td>
<td>80</td>
<td>(Usually 80)</td>
</tr>
<tr>
<td>First Group Population Proportion:</td>
<td>.65</td>
<td>(Between 0.0 and 1.0)</td>
</tr>
<tr>
<td>Second Group Population Proportion:</td>
<td>.8</td>
<td>(Between 0.0 and 1.0)</td>
</tr>
<tr>
<td>Relative Sample Sizes Required (Group 2 / Group 1):</td>
<td>1.0</td>
<td>(For equal samples, use 1.0)</td>
</tr>
</tbody>
</table>

Sample Size Required: Group 1: 151, Group 2: 151

http://statpages.org/proppowr.html

If the improvement in performance is 10% then 350 children would need to be tested.

Allowing for 30 children from each school/class, previous experience from the UK of recruitment of schools and drop out rate suggest that 30 junior (15 intervention, 15 controls) and 30 senior (15 intervention, 15 controls) schools should be approached in each country in order to be sure of having 10 junior intervention schools, 10 senior intervention schools, 10 junior control schools and 10 senior control schools (40 schools in total). This allows for further 30% of schools to drop-out and for non-completion of
questionnaires by some children. As we need 151 children in each group. The 60 schools to be approached each country are for the whole country not in each region

To ensure non-contamination, control classes should ideally not be in the same school as intervention classes but should be as similar as possible in terms of academic attainment and social class, and with equivalent teaching programmes. Other external factors (such as public education campaign/content of other subjects taught) should also be taken into account therefore it would also be worthwhile running some control groups in the same school as the intervention groups, just to draw a comparison.

Participating schools should be given an incentive to encourage their participation. This could be money (80 Euros per school) and an acknowledgement (label) on the Packs. It may be worth seeking external support – for example “Amazon” vouchers for a School Library. Funding would have to be found for this from within the budget i.e. (10 x 4) x 80 Euros for each country.

Children within the intervention schools will have access to website educational games. Their use of the games will be tracked using automated tracking systems of the web site (cookies).

2.1.6. Controls & Control Schools

There should be two types of control

a. the pre-intervention questionnaire results

   in this case each child acts as their own control.

b. result from control school / class

Control Schools should be selected to be as similar as possible as the intervention school – in particular for academic attainment and social class of admission. Where possible data showing the similarity between school and control school should be obtained. Classes should be matched for age. Control classes should not be in the same school as intervention classes.

For each school data should be collected on

- type of school (selective, not selective, public, private, academic, not academic).
- Community served by the school (very deprived, deprived, not deprived, privileged).
- Time period over which intervention delivered.
- Other resources being used by control and intervention classes.

2.1.7. Timing of Evaluation

Baseline studies should be undertaken prior to the intervention period. Post intervention studies using the same populations should then be undertaken.

A pilot in a very small number of schools to test the validity of the questionnaire will be run in the UK.

Baseline testing should then take place from January 08, 1-2 weeks pre-teaching.
Knowledge and attitude should be tested 1-2 weeks post teaching and retention then 4-8 months later, pragmatically throughout 08/09 according to the school timetable.

Ideally questionnaire should be completed

a. 1 -2 weeks before the intervention
b. 1 -2 weeks post intervention
c. 4 – 8 months later.

The intervention period will vary according to the school time-table planning – this should be recorded.

Control classes should complete questionnaires at the same time as intervention classes.

Teachers should receive questionnaires at the same time as children.

The UK aims to carry out the pilot survey in Autumn 2007. Immediately prior to intervention surveys and pack use will then occur pragmatically through 07/08 according to school timetables.

Run in period

\[
\begin{array}{c}	ext{Intervention period} \\
\text{x months before} & \text{Immediately before} & \text{immediately after} & \text{6 months after} \\
\end{array}
\]

2.1.8. \textit{Measurement tools}

2.1.9. \textit{Questionnaires}

There will be 4 questionnaires

- Children pre and post
- Teachers pre and post

Draft Questionnaires for discussion are at Appendix 1 & 2

Key points for further discussion include:

- The style and number of questions
- The use of Likert, VAS or y/n scales
a. Teachers

A selection of teachers involved with the assessment of the pack should be invited to a meeting to explore their experience of using the packs and any suggested improvements. Those invited should represent the widest range of types of schools possible.

Participants should be asked open-ended questions about their views and suggested improvements of each section of the pack. Views should also be sought on the distribution of packs to schools, the suitability of the pack for the target age group and how the pack met the curriculum needs in other areas, such as maths, English, science, and personal health and social education. The meeting should be transcribed or recorded.

c. Children

A selected group(s) of children will be questioned within the class setting about their experience of using the packs and any suggested improvements. It is likely that only a limited subset of classes can be visited.

Participants should be asked open-ended questions about their views and suggested improvements of the pack. Views should also be sought on how understandable the material was, the design of the material and the suitability of the pack for the target age group. The meeting should be transcribed or recorded. The transcript will be analysed for themes and suggestions.

2.2. Website Evaluation

Web Site evaluation will be carried out in all participating countries.

- An evaluation of the use of the web site using weblog analysis will be performed
- number of hits, pages visited, length of stay at each page, search keywords
- Evaluation of the games will be undertaken through relating the game score and other activities such as quizzes to time spent on the game and number of times playing the game.
- Each game will add to the learning outcome associated with the lessons in the Pack.
- If possible games score will be linked to the paper questionnaire described below (for the countries participating).
- Weblog data and questionnaire results will be compared to gain in-depth understanding about the use of the site with respect to the knowledge gain results in order to improve the layout and navigation.
- Focus groups will examine the usability and acceptability of the WebSite.
Chicken Salad Questionnaire

Thank you for taking time to fill out the questionnaire. It shouldn’t take long to complete and will help us to improve the activity and make it more fun! Please be honest in your answers.

1. How enjoyable did you find the activity?
   - ☐ Loved it
   - ☐ liked it
   - ☐ neutral
   - ☐ disliked it
   - ☐ hated it

2. Name three things you liked about the activity:
   a. __________________________________________
   b. __________________________________________
   c. __________________________________________

3. What was the BEST part of the activity and why?

4. What was the WORST part of the activity and why?

5. After this activity, would you think more about washing your hands when handling food?
   - ☐ Yes
   - ☐ No
   - ☐ Maybe

6. What was the main thing you learned in this lesson?

7. Are you a boy or girl?
   - ☐ Boy
   - ☐ Girl
**Evaluation Strategy**  
09/07/2012

## Introduction to microbes

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you cannot see a microbe it is not there</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All bacteria are harmful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria and Viruses are the same</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fungi are microbes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbes are found:</td>
<td>in boiling water</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in our mouths</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>on our hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>on animals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Good microbes and Bad microbes

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>All microbes are bad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People have microbes all over their body</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We use some microbes to make yogurt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We use some microbes to make bread</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some microbes can make us ill</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Spread of infection

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad microbes can spread:</td>
<td>when you touch someone’s hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>from raw meat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>from well cooked meat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People should wash their hands:</td>
<td>before eating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>after a bath</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>before helping make a meal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>after touching pets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If people wash their hands they are less likely to get ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing with soap and water removes more microbes than water alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbes cannot spread by sneezing or coughing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sneezing into a tissue stops more microbes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Treatment of infection

<table>
<thead>
<tr>
<th></th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics:</td>
<td>kill bacteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kill viruses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>will cure any illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>kill our good bacteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>help when you have a cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most coughs and colds get better without antibiotics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccines help protect people against some</td>
<td></td>
<td></td>
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</tbody>
</table>