Implementation of the e-Bug Project in Spain

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Antibiotic abuse and misuse have been recognized as important factors in the development and spread of antibiotic resistance. To prevent the further dissemination of resistance and to develop effective strategies to foster appropriate antibiotic consumption in all European countries, international cooperation is necessary. In comparison with some European countries, Spain shows high percentages of antibiotic resistance in several community-associated bacterial pathogens. In recent years, the health education of children has become a powerful tool for the promotion of healthy lifestyles. The e-Bug Project is a promising approach to improve the prudent use of antibiotics and hygiene habits, and to prevent disease transmission. It is expected that this project will influence Spanish children and young people, so that the adults of the future may follow healthier lifestyles and misuse antibiotics less. The implementation of the e-Bug Project in Spain is explained in this article, including an additional activity of the Ministry of Education related to the European Antibiotic Awareness Day.

Keywords: e-Bug Project, antibiotic use, healthy habits promotion, education, Spain

Introduction

Bacteria are becoming increasingly resistant to antibiotics.¹,² Although frequent calls to stop the excessive use of antibiotics have been made,³ both consumption and resistance are increasing in some countries.²,³ To prevent the further spread of resistance and to develop effective strategies to foster appropriate antibiotic consumption in all European countries, international cooperation is necessary.¹ –³

Spain shows increased rates of antibiotic resistance in several community pathogens in comparison with some other European countries.⁴,⁵ A number of authors and international health institutions have identified uncontrolled self-medication and the over-the-counter (OTC) availability of antibiotics as key health problems for the effective control of antibiotic resistance. According to a comparative European study, Spain is among the countries with the highest levels of self-medication with antibiotics.⁶

Antibiotic consumption in Spain varies according to the measurement system used. Sales data suggest that ~30% of the total antibiotic consumption was not registered by the reimbursement data of the National Health System. These differences were particularly significant for the most-prescribed antibiotics: amoxicillin/clavulanic acid; amoxicillin; clarithromycin; and cefuroxime. The OTC use of antibiotics in Spain may account for a significant proportion of these differences.⁷

The Spanish Ministry of Health and Social Policy carried out awareness campaigns for the rational use of antibiotics in 2006 and 2007. In addition, there was a campaign for the importance of hand hygiene in health facilities and preventive measures for the transmission of influenza A, which was aimed at health personnel, and patients and their families (Campaign 2009).

In recent years, health education during childhood has become a powerful tool for the promotion of healthy lifestyles. The Spanish Ministry of Education therefore implemented the e-Bug Project as an effective way of improving the prudent use of antibiotics and healthy hygiene habits, and preventing disease transmission. It is expected that this project will influence Spanish children and young people, so that the adults of the future may follow healthier lifestyles and reduce the misuse of antibiotics.

Spanish educational system and inclusion of the e-Bug Project in the curriculum

The inclusion of health education in the compulsory education curriculum was recommended at the European Conference of Health Education, held in Dublin in 1990. The Conference considered it to be the most effective way to promote the long-term adoption of healthy lifestyles, and the only way for health education to reach younger population groups, regardless of gender, social class and the level of education attained by their parents. In Spain, this recommendation was embodied in the legislative development of the Organic Law of General Education System (LOGSE), which established that health education is a universal subject that should be present in all curriculum areas.
The development of health and body-care habits, the emotional and psychosocial skills of students, and the critical assessment of social habits related to health are among the objectives included in the current Education Act (LOE; Education Act 2/2006, 3 May 2006). The LOE includes a concern for individual and collective health, and it describes what is needed to achieve basic competence in terms of knowledge related to health and interaction with the physical world. In primary education, health education is included in the areas of Knowledge of Natural, Social and Cultural Environment, Physical Education, and Education for Citizenship. In secondary education, content related to health education is included in the subjects of Natural Science, Biology and Geology, Education for Citizenship, and Civic and Ethical Education. The Ministry of Education has recommended the inclusion of e-Bug activities within the above subjects, indicating in each case the basic skills needed to achieve the e-Bug objectives (Table 1).

Table 1. Examples of the connections between e-Bug contents and the Spanish curriculum*

<table>
<thead>
<tr>
<th>Contents</th>
<th>Social and Cultural Environment</th>
<th>Physical Activity/Education for Citizenship</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Spread of Infection</td>
<td>Primary Education Contents</td>
<td>Primary Education Contents</td>
</tr>
<tr>
<td>2.1 Hand Hygiene</td>
<td>Basic Competences 3 and 8</td>
<td>Basic Competences 3 and 8</td>
</tr>
<tr>
<td>2.2 Respiratory Hygiene</td>
<td>Stage Objective: k</td>
<td>Stage Objective: k</td>
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<tr>
<td>2.3 Food Hygiene</td>
<td>Area Objective: 2</td>
<td>Area: Physical Education</td>
</tr>
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<td></td>
<td>Level: 3rd Cycle</td>
<td>Area Objective: 2</td>
</tr>
<tr>
<td></td>
<td>Content</td>
<td>Level: 3rd Cycle</td>
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<tr>
<td></td>
<td>Block 3: Health and Personal Development</td>
<td>Content</td>
</tr>
</tbody>
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Figure 1. Leaflet for the school activity related to the European Antibiotic Awareness Day.
Project implementation and dissemination

In Spain, the implementation of the e-Bug Project has gone through several stages, which are summarized here.

(i) Project suitability assessment and compatibility with the curriculum. First, we conducted a complete reading of the English version materials to test their suitability for our educational system, and identified the sections of the curriculum in which they could be included.

(ii) Translation and adaptation. A translator was hired to perform specialized translation of the materials, web site and games. At the same time as the translation of the English text into Spanish was carried out, a process of adaptation and revision was also done.

(iii) Printing of materials. One thousand copies of each book were printed.

The e-Bug packs were disseminated to all autonomous communities by sending out materials suitable for primary and secondary education. The communities were invited to inform their local schools about the existence of the programme and to send the materials to those centres that were interested. In addition, the existence of the web site and interactive games was announced.

Simultaneously, several announcements about e-Bug appeared in specific educational journals.\(^8\)

Additional activity for the European Antibiotic Awareness Day (EAAD)

There is a growing body of evidence that the most effective approaches for healthy lifestyle promotion are those that combine health education with a comprehensive whole-school vision. This not only takes into account the students and teachers, but also the influence of families, community and organizations.\(^9,10\)

The Spanish Ministry of Education created a leaflet for the EAAD\(^11\) that contains a two-part activity. The first part of this activity includes brief information about the body’s natural defences and antibiotics, as well as some advice for the proper use of antibiotics. The second is a practical activity that children must complete at home with their parents’ help and later review the answers in the classroom. The addresses of the e-Bug web site as well as other related web sites were included on the back of the leaflet.

Conclusions

Results of the assessment of the implementation of the e-Bug Project in Spain are not currently available, but we are confident that the printed materials and web-based resources will be useful tools for the promotion of healthy habits among our pupils.

Regarding the Project’s effectiveness in reducing inappropriate antibiotic use, we hope that future research in the field will demonstrate improvements in our country.

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References


