

## Current initiatives to improve prudent antibiotic use amongst school-aged children

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High rates of antimicrobial prescribing for children, combined with widespread misunderstanding among the general public about the appropriate use of antibiotics, are major causes for concern. European Antibiotic Awareness Day (EAAD) is an annual event that aims to raise awareness of how to use antibiotics in a responsible way that will help keep them effective for the future. As part of EAAD 2013, this article provides an overview of some initiatives aimed at limiting the extent of inappropriate antibiotic use in children.

**Keywords:** school children, education, antimicrobial prescribing

### Introduction

There are few public health issues of potentially greater importance for society than antibiotic resistance. Professor Dame Sally Davies.<sup>1</sup>

European Antibiotic Awareness Day (EAAD), initiated by the European Centre for Disease Prevention and Control in 2008, is a Europe-wide annual event that aims to raise awareness of how to use antibiotics responsibly.<sup>2</sup> On 18 November each year, Europe-wide activities are undertaken to publicize the risks associated with the inappropriate use of antibiotics and to advise the public that taking antibiotics for the wrong reasons is of no benefit and may cause more harm than good.<sup>3–5</sup>

There is general public misunderstanding on how to use antibiotics properly.<sup>6</sup> Antibiotics are the most widely prescribed therapeutic agents, with rates of prescribing for children being particularly high.<sup>7,8</sup> Within schools, respiratory and gastrointestinal infections are a major cause of childhood illness, with poor respiratory and hand hygiene contributing to increased spread. Throughout the 2011/12 academic year in England, 'illness (not medical or dental appointments)' accounted for the majority of student absenteeism.<sup>9</sup> Secondary cases following spread to parents and school staff are common.<sup>10,11</sup> This article provides an overview of some of the excellent antibiotic awareness initiatives aimed at children.<sup>12</sup>

### School educational initiatives

School affords children the opportunity to learn about health, medicines and the underpinning science if teachers contribute to children's knowledge, beliefs and expectations about antibiotics in their teaching. School hygiene campaigns have been shown to

reduce rates of infection in schoolchildren, staff and their families and this in turn may reduce antibiotic use.<sup>13,14</sup>

### e-Bug school materials

Teachers find the topic of antibiotics and antibiotic resistance difficult to teach.<sup>15</sup> The e-Bug teaching materials aim to fill this skill gap by providing free antibiotic and hygiene teaching resources for junior (7–11 years) and senior (12–15 years) schools across Europe. The resources are designed to raise awareness of the benefits of antibiotics and the importance of using them wisely.<sup>16</sup>

The e-Bug resource has been shown to improve students' knowledge of antibiotics and hygiene.<sup>17</sup> Visits to the English language web site increased by 44.5% in the 2012/13 academic year and, since its launch in 2009, the number of other languages in which e-Bug resources are available has increased from 8 to 25, with extension outside the EU into Turkey and Saudi Arabia. Many of these countries utilize the e-Bug resources as part of their EAAD initiatives.

### Peer education

Peer education is becoming an increasingly popular and trusted method for health education initiatives,<sup>18</sup> in which both the 'educators' and the 'students' gain from the experience. Students feel that their peers can be a trusted and credible source of information, whilst the peer educator gains in terms of knowledge, skills, attitudes and confidence.<sup>19</sup>

Public Health England, in collaboration with the Environmental Health Department has piloted one such peer education initiative in Gloucestershire, encompassing the Marmot Review objective of ensuring a healthy standard of living for all and strengthening the role and impact of ill-health prevention.<sup>20</sup> Year 8 students

were trained to deliver to their peers a science roadshow consisting of five stands, including one on hygiene and prudent antibiotic use. Groups of three to five peer educators were trained on one of the five stands and given a take-home information booklet.

Peer educators expressed concern that antibiotic awareness was a particularly difficult topic, as they had received no previous education on the subject. During the intervention, however, it was evident that they adapted the suggested delivery of the materials to suit their own style and understanding, resulting in a successful, fun stand. One peer educator later said:

I think that it's more of a fun way of learning if you get someone like, from like your age, you can get across learning in your like, your way kind of thing. *Student, Year 8.*

The pilot was well received not only by the students but also by the school as a whole.

The reciprocal learning, from the team of Year 8 students, was really special. This made the event really stick in everyone's minds. The 'waves will go out across the pond', so to speak, about this, and such real life learning will not be forgotten. This was truly life changing. *Head teacher.*

This initiative is currently being taken forward as a joint research project between Public Health England and the Environmental Health Department, and is partially funded by the BSAC. Following completion of the research phase, the initiative will be rolled out to all national Environmental Health Departments for delivery to schools in September 2014.

### Train the trainer

Public Health England is currently producing a series of 'train the trainer' materials aimed at informing school nurses and others about how to educate schoolchildren on hygiene, the spread of infection, vaccination uptake and prudent antibiotic use. This project will build on and extend the current e-Bug educational resources, which have been shown to improve student knowledge on key health messages.<sup>17</sup> Focus groups of stakeholders will be qualitatively interviewed to identify their needs and the findings will be used to further develop a previously trialled pilot 'train the trainer' workshop.<sup>21</sup> Participants will be able to access training resources and other tools via dedicated pages on the e-Bug web site.

### Clinician resources

A recent review to identify online educational programmes on the optimal use of antibiotics in children demonstrates that there are limited educational resources currently available.<sup>22</sup>

### The Antibiotic Resistance and Prescribing in European Children (ARPEC) project

Despite antibiotic prescribing rates being high in children, there is currently limited information on antimicrobial consumption and antibiotic resistance among children in Europe. Surveillance schemes such as ESAC (European Surveillance of Antimicrobial Consumption), and EARS-Net (European Antimicrobial Resistance

Surveillance Network) currently have limited age-specific data. ARPEC,<sup>23</sup> an initiative developed by the European Society of Paediatric Infectious Diseases, aims to improve the evidence base for antibiotic prescribing in children and translate this into long-term educational programmes for prescribers and trainee paediatricians.

### The 'When Should I Worry?' booklet

'When Should I Worry?',<sup>24</sup> a booklet developed by Cardiff University for use during primary care consultations, provides information for parents about respiratory tract infections in children. Use of the booklet has been shown to result in a two-thirds reduction in antibiotic prescribing without negatively affecting parental satisfaction.<sup>25</sup>

### Discussion

Teaching children about antibiotic resistance should raise their awareness of the importance of prudent antibiotic use. Taking the message home to their parents should in turn raise awareness in the family environment. Children are the largest consumers of antibiotics, but research indicates that their knowledge of antibiotics is poor.<sup>17</sup> It is therefore essential that we invest in their education to allow both children and their parents to make informed decisions. Indeed, research indicates that children with knowledge of medicine feel more in control of their own health,<sup>26</sup> and that those who are the most knowledgeable about antibiotics behave more responsibly.<sup>27</sup> Educating young people about antibiotics will also facilitate behaviour change in the long term through changes in social norms, which are an important determinant of behaviour.<sup>28</sup>

Parents have an influential voice in the medicines used by their children,<sup>29</sup> however, it has been suggested that although the public are aware of the dangers of antibiotic misuse, their behaviour and practice do not always reflect this awareness.<sup>30</sup> This may be because parental beliefs, fears and expectations play an important part in consulting behaviour. The 2010 Eurobarometer report<sup>27</sup> concluded that messages on antibiotic use obtained from doctors are more effective than those from the media. Resources like the 'Why should I worry?' booklet used during consultation may not only help to increase parental knowledge about antibiotic use and resistance but also increase their confidence to self-care for the majority of infections that are self-limiting, without consulting their GP.

Research in the USA has noted that individuals have a higher awareness of prudent antibiotic use when exposed to two or more interventions.<sup>31</sup> Whilst mass media campaigns are known to increase awareness and knowledge and reinforce existing attitudes,<sup>32</sup> it has been suggested that interpersonal channels work better at changing attitudes and behaviour.<sup>33</sup> Indeed, Huttner *et al.*<sup>34</sup> concluded that multifaceted campaigns repeated over several years have the greatest effect. Taking this into consideration, it may be concluded that for campaigns to be truly successful, a focused multichannel approach should be adopted that combines mass media and interpersonal channels, including the education of young people. EAAD helps facilitate this approach whilst ensuring the delivery of consistent and united European key messages on prudent antibiotic use.

## Transparency declarations

C.A.M. is a member of the Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infections, is a member of the Prescribing Sub-Group, and is Chair of the Public Education Sub-Group. C.A.M. also leads the e-Bug Project. D.L. has previously been the e-Bug Project Manager and currently assists the project in the role of International Liaison Officer.

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