



Antimicrobial resistance in relation to the use of antimicrobial products in the home

December 2004

A consensus statement from the Scientific Advisory Board of the International Scientific Forum on Home Hygiene (IFH):

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In 2000 the IFH Scientific Advisory Board carried out a detailed review of the scientific literature relating to antimicrobial resistance in relation to the use of biocides (see: Microbial resistance and biocides: a review of the evidence base). The aim was not only to understand what is known about the relationship between exposure to biocides and reduced sensitivity to antibiotics and biocides, but to attempt to clarify the practical implications for the use of biocides in the domestic environment. The following is a consensus statement on this issue as agreed by the IFH board, based on their review of the currently available scientific data. In making their 2000 consensus statement regarding concerns about biocide use in relation to antimicrobial resistance, the IFH board agreed, however, that this aspect requires constant review. In 2004 the subject was re-evaluated in light of new data that had become available since the first publication in 2000 (see: Biocide usage and antimicrobial resistance in home settings: an update). The IFH Board agreed that their consensus view on this issue remained the same.

CONSENSUS STATEMENT OF THE IFH SCIENTIFIC ADVISORY BOARD

The development of microbial resistance to antibiotics and the threat this represents to antibiotic use in clinical practice is a real concern. The general conclusion by the scientific and medical community is that the main cause of the problem is inappropriate use of antibiotics in clinical practice – although use of antibiotics in veterinary medicine and agricultural feedstuffs may also be involved. A number of scientists have also considered the possibility that use of biocides could be an additional contributory factor. At a meeting of the IFH Scientific Advisory Board in May 1999 current scientific data regarding microbial resistance to biocides and antibiotics was assessed in order to evaluate whether:

- Biocide use has, or could have, an impact on antibiotic resistance in clinical practice
- Biocide use encourages, or could encourage, the development of microbial resistance to biocides

- Whether there are practical implications that indicate the need for a change in policy on biocide usage in the domestic setting.

The following represents the consensus statement of the IFH board, based on currently available scientific data:

- Whilst laboratory studies have shown potential links between the development of reduced susceptibility to certain types of biocides and the development of reduced susceptibility to antibiotics under certain conditions, there is no evidence that biocide use has been a significant factor to date in the development of antibiotic resistance in clinical practice – antibiotic misuse is the most significant causative factor.
- It must be borne in mind that as increasing antibiotic resistance continues to reduce our ability to treat certain infections, then infection prevention through good hygiene – not only in hospitals but also in the community – becomes of even greater importance.
- Since biocides, used responsibly, form an integral part of infection prevention through good hygiene, not only in hospitals but also in the home, it is important to address concerns that use of biocides may contribute to the development of biocide resistance in practical use. Although laboratory studies provide evidence that prolonged exposure to low levels of certain biocides can be associated with reduced microbial susceptibility, this decreased susceptibility is small relative to concentrations of biocides used in practice. There is currently no evidence to suggest that biocide usage at its current levels (i.e., in domestic and other settings) compromises the effectiveness of hygiene procedures under in-use conditions.
- It is important to recognise that, by reducing the number of infection outbreaks through effective hygiene, the number of antibiotic courses prescribed can be lowered, which can in turn reduce the impact of antibiotic resistance, i.e., as part of a responsible hygiene policy correct biocide use can contribute to controlling the impact of antibiotic resistance. Thus, the possible risks associated with reduced susceptibility to antimicrobials must be weighed against the risks of not using disinfection where hygiene cannot be achieved by other means.
- Education and advice on these issues is important so that health professionals and the public recognise the important benefits of infection prevention through good hygiene and are more fully informed about the possible threats from antibiotic misuse.

Laboratory studies have shown that bacteria possess mechanisms whereby a link between biocide exposure and the development of biocide and antibiotic resistance can exist. For this reason it is important to ensure that biocides are used responsibly as part of a good hygiene routine in the domestic setting in order to avoid the possibility of any impact on antimicrobial resistance in the future:

- they should not be used indiscriminately and irresponsibly*

- when used they should, wherever possible, be used at concentrations and under conditions which give rapid and effective inactivation of micro-organisms
- they should be used in a way that as far as possible avoids the build-up of residues of biocide which might encourage the selection of resistant strains

It is important to continue to research and to monitor these issues.

- The IFH has produced a document which gives guidelines as to where the use of biocides is considered advisable and beneficial in the home as a means to prevent infection and cross contamination. Readers should note that this document refers only to the application of hygiene procedures to prevent cross contamination and cross infection in the domestic setting. It does not apply to the use of skin products (hand soaps or body washes) to reduce resident skin carriage of potential pathogens or to achieve “antisepsis” i.e., prevention of self infection from organisms present on the body surface.
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