

## Antibiotics: the fight against resistance

**For years now, we have laboured under the illusion that antibiotics have overcome bacterial diseases once and for all. Not so. Bacteria have managed to fight back against antibiotics, and their resistance to these drugs has spread further and further over the world. Led by Professor Peter Schulz at the Health Care Communication Laboratory of the Faculty of Communication Sciences, Università della Svizzera italiana, the project seeks to analyse the factors at play in patients' correct or incorrect use of antibiotics. If an antibiotics-based treatment is to work there must be good communication between doctor and patient.**

One of the major advances in twentieth-century medicine has been the discovery of antibiotics and their application in the cure of bacterial infections. Unfortunately, it was not long before bacteria started to develop the ability to counteract these drugs' healing power. If the trend continues, we might face a real risk of running out of antibiotics powerful enough to defeat some clinically-important bacteria, not least because current research in pharmaceuticals does not seem to be ready to launch any new classes of substances with antibacterial properties. Paradoxically, the root cause of resistance gene selection in bacteria seems to be an inappropriate use of antibiotics. In an attempt to determine clearly the causes of the misuse of these drugs in the Swiss context and to identify possible solutions, HCC-Lab of the Faculty of Communication Sciences, Università della Svizzera italiana (USI), has put together the project entitled 'Towards a judicious use of antibiotics by doctor and patients'. The



A culture of bacteria (Source: Istituto cantonale di microbiologia, Bellinzona).

project is headed by Professor Peter Schulz in collaboration with Benedetta Waldburger-Crivelli and Barbara Osimani and is funded by National Research Programme 49 (NRP 49) of the Swiss National Foundation. Its objective is to identify which factors influence the behaviour of patients confronted with antibiotics and the relevance of sources of information. "A variety of factors tend to converge in the prescription of particular antibiotics - claims Peter Schulz. These include individual patients' expectations, a doctor's customary reaction, a least-risk assessment, but also a degree of pressure exercised by the pharmaceutical industry. Teaching how to use antibiotics correctly is not a discipline exclusively reserved to doctors; on the contrary it must involve the population as a whole". This is why the project has devoted a good deal of attention to the analysis of information put out by doctors, the press, and through the leaflets enclosed with the packages. This knowledge is indeed essential to the launch of a well-focused awareness campaign. The data collected will provide a basis from which to issue recommendations addressed both to health care staff and to their patients. Conducted under the aegis of the Università della Svizzera italiana, this research project is part of NRP 49 of the SNF.

### The Health Care Communication Laboratory

HCC-Lab is an institute of USI's Faculty of Communication Sciences, Lugano, conducting research on the role and relevance of health-care communication. Through collaborative ventures with the academic world, with public services providers, private companies and busi-



nesses, the Institute hopes to achieve a fruitful alliance between research and applications in public health areas. HCC-Lab aims to design a conceptual framework for the practice of communication in the field of health care, and to set up a good partnership network with medical practitioners and nursing staff to promote research initiatives in communication. HCC-Lab's project focuses on doctor-patient relations, on the analysis of media coverage of health issues, and on the impact of technology on health care communication. At present, HCC-Lab is involved in a number of projects funded by the SNF and by the European Union, besides various local and cross-border initiatives.

## The safest weapon: better communication!

To determine whether it is possible to set right the misuse of antibiotics, researchers structured their study into three levels. To begin with, they carried out a telephone survey to ascertain how much the population knew about consumption of antibiotics and the issue of resistance. Subsequently, helped by nine medical doctors (five general practitioners, three paediatricians and one internist), researchers recorded some hundred medical examinations with a view to identifying the factors coming into play during a consultation. Finally, researchers scrutinised the texts of the information leaflets enclosed with the antibiotic drugs packages. 127 leaflets were singled out and subjected to scrutiny; they were all cases of antibiotics commonly prescribed to cure infections of the respiratory system. Findings collected so far show quite clearly that the use of antibiotics depends closely on cultural and communication factors. For instance, noticeably, levels of awareness and understanding vary a good deal according to Switzerland's three main language areas. Not only, but the sources of information used by citizens are not the same in the three regions. An initial analysis of the medical consultations has brought to the fore the importance of the leaflets as a source of information. Instruction leaflets are normally



Prof. Peter Schulz

quite clear and well structured, although they provide no reference (or guidance) to resistance. A first lesson to be drawn from these preliminary results may be: the phenomenon of increased resistance to antibiotics may be countered by improving communication. Results are still being evaluated, but researchers are already at work on new strategies designed to influence the use of antibiotics on the ground that a doctor is particularly well placed to contribute to health education. "A doctor has to be a communicator able to inform clearly, repeatedly, perhaps also in writing", claims Peter Schulz. As to the public at large, it is worth insisting on the adequate use of antibiotics. Doctors must be duly informed of any steps undertaken to improve patients' use of antibiotics and encouraged to relate sympathetically to their patients. Far from relying merely on the discovery of new antibacterial substances, the success of an antibiotics-based treatment greatly depends on suitable communication strategies in the complex world of health care. Nowadays, this second point might turn out to be an attractive weapon capable of protecting the therapeutic efficacy of antibiotics.

### Four research projects in Ticino

With its core issue of resistance to antibiotics, NRP 49 intends to develop multidisciplinary strategies towards a system for monitoring resistance in Switzerland in all sectors concerned, namely human population and livestock, foodstuff, environment, etc. The programme seeks, on the one hand, to measure the degree of mobility of resistant bacteria and to assess any possible risks to future medical treatments; on the other hand, to analyse the social, legal, ethical and economic implications of such resistance to antibiotics. At the same time, the programme wishes to promote molecular studies leading to the production of new antibiotics. The Swiss-speaking region of Switzerland plays a very active part in NRP 49. At the Laboratorio cantonale di Microbiologia, Prof. Raffaele Peduzzi is studying the role of antibiotics waste released into the environment, while Prof. Jean-Claude Piffaretti is working on the molecular epidemiology of a particular bacterial species in human beings and in animals. At the USI, Prof. Massimo Filippini (Faculty of Economics) is examining the economic impact of the use of antibiotics in Switzerland, while Prof. Peter Schulz (Faculty of Communication Sciences) looks into the communication aspects as detailed in this leaflet. Launched in July 2001, NRP 49 has been allocated a grant of SFr 12 million over a five-year period.

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