

## Neisseria gonorrhoeae Drug Susceptibility in Buenos Aires, Argentina

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### Decrease in gonorrhoea in the 1990s

Buenos Aires is an international port-city of three million people; the greater Buenos Aires area has a total of ten million people. The Hospital Nacional de Clínicas (HNC) Gral San Martín, University of Buenos Aires, is located in the center of the city. Eighty percent of the patient population of the HNC's sexually transmitted disease (STD) service comes from the inner city and 20% from suburban areas. Cases of gonorrhoea are determined by culture and conventional identification<sup>1</sup> of *Neisseria gonorrhoeae* (NG).

The percentage of heterosexual male patients with NG remained stable at about 7% from 1985 to 1999. An important group of the HNC's STD patients are men that have sex with men (MSM). MSM made up 50% of all male NG cases in 1985 to 1990, less than 10% in 1991 to 1994, and 21.3% in 1995 to 1999.

Despite an increase in the number of MSM consults in 1999, the incidence of NG infection in MSM declined from 23.9% to 10.7% between 1995 and 1999. During the same period, the mean incidence of NG was 15.7% in MSM compared with 5.9% in heterosexual males (Odds ratio: 2.94 (2.21<OR<3.92) p<0.001, correction

of Yates) (Table 1). This more than double prevalence of NG in MSM emphasizes the need for a special focus on the MSM community.

Overall, gonorrhoea rates in the HNC patients declined abruptly between 1991 to 1992 (15.2% to 4.4%)<sup>2</sup> and remained stable from 1992 to 1999 (mean=4.9%). This sharp decline of gonorrhoea since 1991 does not have a definitive explanation. An increasing number of AIDS cases indicates that Argentina's AIDS prevention campaign has not produced significant changes in sexual behavior. We believe that an important cause of the decrease in gonorrhoea was the introduction of fluoroquinolone treatment in 1989. In response to rising resistance to penicillin, tetracycline, and spectinomycin in the US, the Centers for Disease Control recommended the use of extended-spectrum cephalosporins (e.g. cefotaxime, ceftriaxone) or selected fluoroquinolones (ciprofloxacin or ofloxacin) for the first-line therapy of uncomplicated gonorrhoea.<sup>3</sup>

One dose of fluoroquinolones and cephalosporins eradicates NG in a high percentage of patients and drastically reduces the effective individual transmission period.

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## The HARMONY Project's Antibiotic Policy and Prescribing Process Tools

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The HARMONY project has developed interactive tools to be used by hospitals to measure the effectiveness of their antibiotic policy and antibiotic prescribing practices.<sup>1</sup> The HARMONY group comprises members of nine EU countries but interacts with many other groups and countries.

### The prototype antibiotic policy and process tools

I developed the prototype tools as part of a United Kingdom clinical audit project in hospital infection<sup>2</sup>. As far as we can ascertain, this was the first attempt to develop a tool to facilitate the design of a hospital antibiotic policy based on the analysis of existing hospital policies. Nineteen hospitals were analyzed. It was an iterative process with the infection control teams in each of the participating hospitals.

The policy tool assigns a score to each hospital's antibiotic policy or equivalent document. The document scores one point for each of 110 policy features present in the document. All policy features are weighted equally.

In the original study there was no agreement in the use of the terms "policy" and "formulary". The document name was no guide to the score

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**Table 1. *Neisseria gonorrhoeae* in heterosexual men and in men that have sex with men (MSM)**

Year	Total # of patients	Heterosexual Men		MSM				
		# of heterosexual patients	Cases of gonorrhea (%)	# of MSM patients (%)	Cases of gonorrhea (%)	Urethra	Anal	Throat
1995	638	546	43 (7.8%)	92 (14.4%)	22 (23.9%)	17	6	
1996	696	540	29 (5.3%)	156 (22.4)	29 (18.6)	23	5	5
1997	720	600	21 (3.5)	120 (16.6)	17 (14.2)	15	2	3
1998	413	306	23 (7.5%)	107 (25.9)	14 (13.1%)	13	1	
1999	422	282	19 (6.7)	140 (33.1)	15 (10.7)	12	4	2
Total		2274	136 (5.9)	615	97 (15.7)	80	17	10

### Antibiotic susceptibility of *Neisseria gonorrhoeae*

A priority in our campaign against NG has been to increase the isolation and drug susceptibility testing of NG. In every strain isolated,  $\beta$ -lactamase production was detected using Nitrocefim (cefinaise, BBL. Becton Dickinson) a chromogenic cephalosporin.<sup>4</sup> Minimal inhibitory concentrations (MICs) were determined by an agar dilution technique and NCCLS guidelines were used to categorize isolates.<sup>5</sup> An isolate was considered to be chromosomally-mediated, penicillin-resistant NG (CMRNG) when the MIC of penicillin was  $\geq 1$  mg/ml and  $\beta$ -lactamase negative.<sup>4</sup>

### Penicillin and tetracycline no longer useful

Over 50% of the NG strains showed a reduced susceptibility to penicillin (MIC = 0.125 - 1 ug/ml). At the HNC, the incidence of penicillinase-producing NG (PPNG) was high from 1987 to 1990 (range 28.0-44.6%), but gradually decreased to levels of 7.8% and 14.3% in 1996 and 1999, respectively. Plasmid-induced resistance to penicillin increased from 1.9% in 1980 to 28.4% in 1992-1994 and then decreased. This decrease in resistance to penicillin is probably related to a de-

creased use of penicillin. As PPNG declined in our area, CMRNG increased to a peak of 24.3% in 1998, paralleling the trends reported in the US.<sup>6</sup>

CMRNG strains show resistance to tetracycline (MIC = 2-8 mg/ml), intermediate sensitivity to erythromycin (MIC = 1-4 mg/ml), and their MIC of cefuroxime was one or two dilutions higher than PPNG strains. Chromosomal resistance to tetracycline was not only found in CMRNG, but also in PPNG strains and non-PPNG strains. In the HNC area, plasmid-mediated tetracycline-resistant NG (MIC  $\geq 16$  mg/ml) is not common, but the percentage of strains with chromosomal resistance to tetracycline is high; therefore, tetracycline is not recommended for the initial treatment of gonorrhea.

### Third generation cephalosporins and quinolones still active in Buenos Aires

Once again, NG is adapting by acquiring new mechanisms of drug resistance to fluoroquinolones and cephalosporins.<sup>7,8,9</sup> NG with reduced susceptibility or resistance to fluoroquinolones appeared first in the Far East and expanded to other Asian regions, the Philippines, the US, UK and other European countries.<sup>7</sup> In studies of NG susceptibility done between 1995 and

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1999, we did not detect any resistance to ceftriaxone (Table 2). The Argentine National Network found no resistance to spectinomycin, cefuroxime, ceftriaxone, or ciprofloxacin.<sup>9</sup> However, as strains of NG with reduced susceptibility to ceftriaxone (MIC >0.25 ug/ml) have recently been detected in Dhaka, Bangladesh<sup>7</sup> and in Tucumán, Argentina,<sup>8</sup> we have mounted a special monitoring surveillance program in the Buenos Aires metropolitan area.

In the Buenos Aires area, only one NG strain showed decreased susceptibility to ciprofloxacin and ofloxacin in 1996 (MIC= 0.5 mg/ml). This incidence resembles that in the London area (0.4%)<sup>10</sup> and is clearly different from the evolution of quinolone-resistant NG in south Asia, the Philippines, and even in the US.

### Macrolides — an alert

Recently, an increase of NG strains with intermediate sensitivity to macrolides (MIC= 1-4 mg/ml) has been noted. Two strains of NG resistant to erythromycin (MIC= 4 and 8 mg/ml) and reduced susceptibility to azithromycin (MIC= 2 and 4 mg/ml) were isolated in our hospital between 1995 and 1999. Recently, a clonal outbreak of erythromycin-resistant NG occurred in MSM in Seattle, US.<sup>11</sup> These findings necessitate a special alert because macrolides, especially azithromycin, are widely used and can generate cross-resistant strains in a short time.

### Drug sensitivity of NG isolated from MSM

Between 1985 and 1999, 83 extragenital gonococci were isolated (rectum, 70 and throat, 13). None of

the throat isolates were PPNG and only 3% were CMRNG. Strains isolated from the rectum were 14% PPNG and 46% CMRNG, which is highly significant. In 1984 in New Mexico, US, 60% of CMRNG strains were isolated from homosexual patients.<sup>12</sup> Reportedly, rectal gonococcal isolates in homosexual men have reduced permeability to lipids and toxic fecal fatty acids and thus exhibit a decreased permeability to antibiotics.<sup>13</sup> Thirty-one percent of NG strains isolated from the rectum showed CMRNG compared with 8% isolated from the pharynx. Rectal NG isolates from MSM in the Buenos Aires area demonstrated similar profiles during the last five years.

### Conclusions

There is a need to increase NG surveillance the Buenos Aires area. This effort should include close monitoring of socioeconomic status, sex, age and geographic distribution of new cases.

We are aware of a high prevalence of resistance to penicillin and tetracycline and must monitor for the appearance of NG with decreased susceptibility to the fluoroquinolones. Despite the absence of strains with reduced susceptibility to the extended-spectrum cephalosporins in Buenos Aires, we have installed an alert following the detection of such strains in the north-west region of Argentina.

We are developing a geographically-targeted outreach program to address the gonorrhea problem among HNC patients. Clinic visits, laboratory diagnosis, and treatment at the HNC's STD service and other centers of the public health service are free. Unfortunately, an unknown number of people obtain over-the-counter pharmacy treatment, most frequently with penicillin. This is probably the cause of a number of residual cases of gonorrhea.

The authors gratefully acknowledge UBACyT grant B22 (1998-2000) and CONICET PIT (1996-1999). RA deTorres is a member of the Research Career of CONICET.

**Table 2. Susceptibility of isolates of *Neisseria gonorrhoeae* to antimicrobial agents**

Agents	Years	n	MIC (ug/ml)			Number of strains (%)	
			Range	50%	90%	Intermediate	Resistant
Penicillin	1985-86	507	0.008->128	0.125	16	315 (62.2)	72 (14.2)
	1988	72	0.032->128	0.5	>128	38 (52.8)	32 (44.4)
	1995-96	81	0.001-128	0.125	4	51 (63)	8 (10)
	1997-99	85	0.008-128	0.125	1	57 (68)	10 (12)
Cefuroxime	1985-86	507	0.008-2	0.06	0.125	1 (0.2)	
	1988	72	0.016-0.5	0.125	0.5		
	1995-96	81	0.001-0.5	0.032	0.125		
	1997-99	85	0.002-1	0.125	0.5		
Ceftriaxone	1995-96	81	0.001-0.008	0.001	0.001		
	1997-99	85	0.002-0.016	0.001	0.008		
Ciprofloxacin	1985-86	507	0.002-0.06	0.004	0.016		
	1995-96	81	0.001-0.5	0.008	0.032	1 (1.2)	
	1997-99	85	0.002-0.06	0.004	0.016		
Ofloxacin	1988	72	0.008-0.063	0.008	0.016		
	1995-96	81	0.002-0.5	0.016	0.032	1 (1.2)	
	1997-99	85	0.002-0.06	0.016	0.032		
Tetracycline	1985-86	507	0.063-8	2	4	219 (43.2)	263 (51.8)
	1995-96	81	0.063-8	2	4	28 (37.4)	44 (58.6)
	1997-99	88	0.008-8	1	2	59 (67.0)	13 (14.8)
Minocycline	1995-96	81	0.032-8	0.5	2		
Erythromycin	1985-86	507	0.032-2	0.25	0.5	23 (4.5)	
	1995-96	81	0.063-8	0.5	4	24 (29.6)	1 (1.2)
	1997-99	85	0.016-4	1	2	47 (53.4)	
Azithromycin	1995-96	81	0.016-2	0.032	0.125		
	1997-99	85	0.002-4	0.25	0.5	1 (1.2)	
Spectinomycin	1985-86	507	2-32	16	16		
	1988	72	2-16	16	16		
	1995-96	81	2-16	8	16		
	1997-99	85	2-16	16	16		

## GONORRHEA continued from page 3

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## CME Course

APUA completed a collaborative provider education project with the Massachusetts College of Pharmacy and Health Sciences and the American Academy of Nurse Practitioners Foundation. The program, "Bacteria Battle Back: Addressing Antibiotic Resistance," a 2-credit CME home study course for Massachusetts pharmacists and nurse practitioners, is being prepared for national distribution to these practitioners as well as physicians.

Another APUA coordinated educational piece, geared to community physicians, will appear in an article in the March 15 edition of the *American Journal of Family Physicians*. The article "Antimicrobial Resistance: A Plan of Action," describes the consensus of an APUA-sponsored summit on the subject, and is coauthored by APUA President Dr. Stuart Levy and Dr. Thomas Hooton.

For information on the CME course and summit meeting, see [www.apua.org](http://www.apua.org).

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recorded by the tool (see Fig. 1). In some cases, a supposed "formulary" was not a list of available drugs but a text-book describing treatment of different infections and a comprehensive description of antimicrobials with their indications, antimicrobial activity, side-effects and drug interactions. This is well illustrated by the British National "Formulary". However, it would appear that, whatever the document's name, in that hospital it is often perceived as the local policy. Another interesting detail concerned the size of the documents, which ranged from four to hundreds of pages.

The proceso tool enables comparisons between prescribing control processes (expressed as a percentage of the maximum possible score) and antibiotic document content (see Fig. 2). Although a statistically significant relationship was evident, the validity of such an unstratified approach raised an interesting question. Should hospital documents be included in such an analysis when they had interpreted the term formulary correctly but in doing so scored poorly with the policy tool? Some groups felt that such hospitals should instead have produced a policy document and their low prescribing process score was an additional indication that prescribing practices might be suboptimal in that hospital. Such an assumption would of course have to be supported with audit information!

I have found that the tools often result in the review and audit of local prescribing activities and the local antibiotic policy itself. Many experienced medical microbiologists find the tool a useful checklist for discussions with their prescribing committees when reviewing their own policy. More junior staff use the tool to assist in the design process of their own policies at their first consultant appointment.

The aim of the HARMONY tool is not to standardize all antibiotic policies, but to learn from the interesting variability among antibiotic policies about policy design, content and how to gain ownership of a policy by all the relevant healthcare workers.

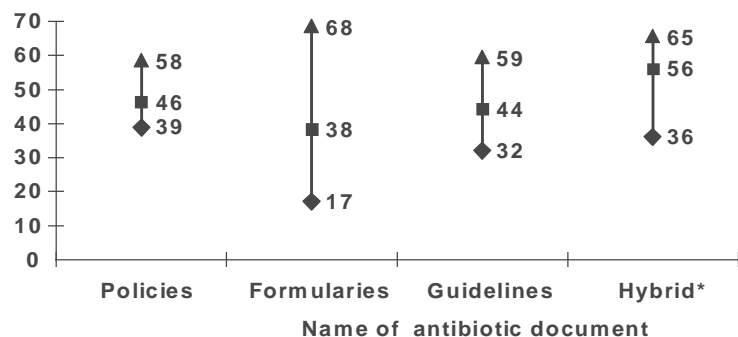
### The current HARMONY policy tool

We used information gathered from use of the prototype tools and from interacting with others in the HARMONY project to improve the tools.

The HARMONY policy tool has five areas for policy content analysis. The users indicate whether a feature is present in their policy and assign a qualitative score of that feature's relative importance<sup>3</sup>. The users also state whether they helped develop the policy, their profession and grade.

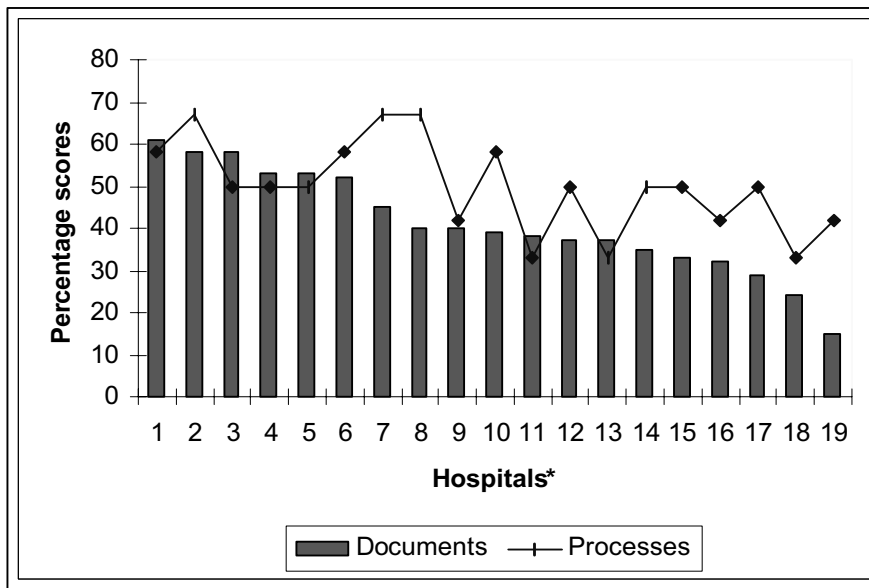
The tool also considers hospital context. Attitudes to a national formulary are explored as well as the need for additional laboratory and junior doctor handbooks (some hospitals have all three) or policies for different units or specialties.

**Figure 1. Mean, maximum and minimum percentage scores for 19 antibiotic documents from England and Wales**



\* Had more than one name e.g. policy guideline, policy newsletter

**Figure 2. Relationship between antibiotic document and process percentage scores**



#### Five areas of policy analysis:

##### 1) Possible compliance factors

I find the compliance factors area to be the most interesting during group discussions. It includes listing the membership of the committee that developed the antibiotic policy, the size and design of the policy document and its interaction with a national formulary. There are often surprising differences in views as to the need for involvement of junior staff in the prescribing committee, despite their prescribing the majority of antimicrobial agents in many hospitals. Another compliance factor is that documents that do not readily fit into a jacket pocket or handbag may be less useful on a daily basis. However, those who have spent a lot of time developing a textbook format for their policy are sometimes reluctant to reduce its size, content or design. This whole area is one worthy of semi-structured questioning interviews and seeking the opinions of educational experts.

##### 2) Prophylaxis

The analysis of prophylaxis policy invariably generates the greatest consensus amongst clinical microbiologists, although there can be interesting discussions in multi-disciplinary groups about the evidence base for the

different features and the possible threats to clinical prescribing freedom.

##### 3) Principles of prescribing

The policy analysis relating to prescribing principles comprises many important areas such as the need for microbiological specimens, cost of antibiotics, switch of therapy to cheaper, effective or oral agents and the use of topical antibiotics.

##### 4) Aminoglycoside therapy

The analysis of aminoglycoside therapy will need to change with the increasing use of single daily dose regimens. However, it is an important topic to include in any discussion of antibiotic policies for medico-legal and quality of care reasons.

##### 5) Treatment of specific infections

The HARMONY policy tool focuses on analyzing policies related to urinary tract, pneumonia, and central line infections. There are, of course, many other infections and specialties with particular policy requirements. The tool does not cover all of these as this would inevitably increase the time required to enter the data and reduced participation. The tool enables participants to add extra features or comments, which will be used to guide further development.

#### The HARMONY process tool

The HARMONY process tool has 19 prescribing process areas, including 1) the presence of a limited antibiotic susceptibility reporting policy, 2) review of the availability or otherwise of new antibiotics, 3) rotation of agents used in empirical prescribing, 4) restrictive antibiotic prescribing policy, 5) audit of any part of the policy, 6) automatic stop dates for prophylaxis or other treatments and 7) interactions between the pharmacist and consultant medical microbiologist. Educational aspects comprise eight additional process areas.

These data are of obvious interest, although many require more scientific validation or modeling. The data should inform the prescribing communities' ongoing debate of the relative roles (if any) of these prescribing control approaches.

#### The future

Several HARMONY members, including myself, have concerns about the size of the tool affecting compliance. As use via the Internet increases and the aggregated anonymous database grows, we will be able to consider reducing the size of the tool in a more informed manner.

We see the HARMONY tools becoming a useful information resource. One proposal is to look at various scoring systems as part of modeling exercises examining antibiotic resistance rates and amounts of prescribed antibiotics. The long-term goal is to add an evidence-based categorization to these features, which would hopefully enable a reduction in the tool's size and complexity. This approach is already in progress in another part of the HARMONY project examining infection control guidelines for central lines and urinary catheters. Weightings could be derived from this evidence base and certain features excluded from the final scores where there is scientific evidence that such an approach is not advisable.

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### Call for participation

We are working with the European Society of Clinical Microbiology and Infectious Disease Study Group of Antibiotic Policies (ESGAP) and also invite APUA members and other professionals to collaborate in the HARMONY project. If interested in participating, please obtain the tool from the HARMONY website (<http://www.phls.co.uk/International/Harmony/Harmony.htm>) and return the completed tool to Dr. Barry Cookson at [bcookson@phls.nhs.uk](mailto:bcookson@phls.nhs.uk). We will produce aggregated and anonymous analyses for publication including all named contributors in any publication and list them on the website. As the group expands, we will explore new ways of analyzing the data, while taking great care to avoid deductive disclosure of participants' data.

We hope this tool stimulates the healthcare and research communities and contributes solutions to the global issues of antimicrobial resistance.

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### USAID/PAHO

Dr. Anibal Sosa, Director of APUA's Latin American Initiative, travelled to a USAID/PAHO sponsored meeting in Lima, Peru from January 24-26. He provided technical advisory expertise to an audience of 150 clinicians from 34 regions and 50 hospitals. The goal of the meeting was to review and update the national antibiotic formulary.

### Thanks to Fred Wilcon for Years of Service

Fred Wilcon, a founding member of APUA, resigned from APUA's Board of Directors. Among his many efforts in support of APUA, Mr. Wilcon wrote APUA's bylaws. APUA gratefully acknowledges his years of service and expert legal consultation.

## APUA News

### Ecology Updates

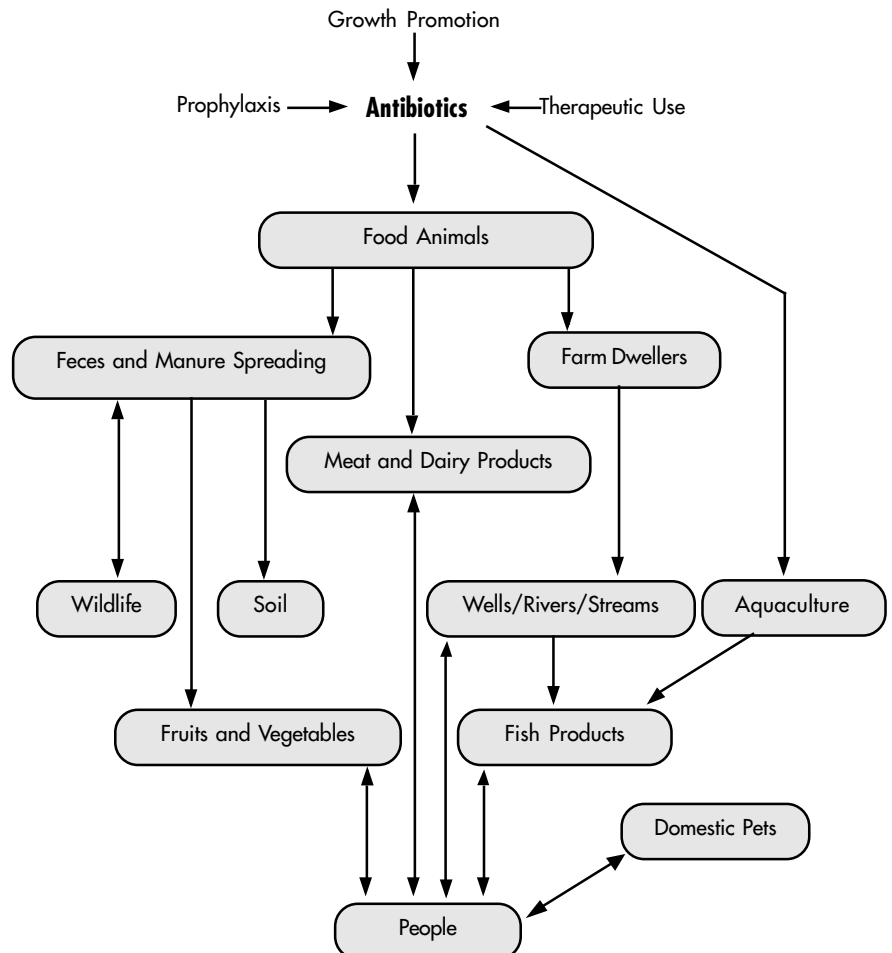
APUA has established an Ecology Program to focus on 1) Facts about Antibiotic use in Animals and its Impact on Resistance (FAAIR), and 2) a national public awareness campaign on the ecology of resistance, funded by the Nathan Cummings Foundation. The Ecology Program's staff consists of Stephen DeVincent, DVM, MA (veterinary medicine and environmental policy), Director; Martha Richmond, PhD (biochemistry); Karin Travers, PhD (virology, biochemistry and epidemiology); and Ellen Wells (biology and environmental studies).

The FAAIR Project aims to bring scientific evidence to the policy debates surrounding the use of antibiotics in agriculture. A nine-member Scientific Advisory Panel is preparing a report to be completed by July. The APUA Speaker's Bureau will send event speakers to key meetings of veterinarians, policy makers and industry groups to promote prudent antibiotic use in animals.

In January, Dr. DeVincent represented APUA at the North American Veterinary Conference. In late January, Dr. Stuart Levy, APUA President, spoke on the use of antimicrobial drugs in food animals at the FDA's CVM hearing on thresholds (see <http://www.fda.gov/cvm/antimicrobial/ARTHres.htm>.) APUA also convened a meeting of national leaders from industry, government and advocacy committees. Dr. Patricia McManus, University of Wisconsin, and Dr. Scott McEwen, University of Guelph, spoke on the ecological impact of antibiotic resistance.

The following chart depicts the flow of antibiotic-resistant bacteria through the ecosystem.

#### Ecologic Impact of the Use of Antibiotics in Food Animals



For more information about APUA's Ecology Program, contact Dr. DeVincent at [stephen.devincen@tufts.edu](mailto:stephen.devincen@tufts.edu).

## APUA Chapter Notes

**APUA-Brazil:** Brazil is the latest addition to APUA's Latin American chapter network. Chapter Leader, Dr. Helio S. Sader, is on the faculty of the Federal University of São Paulo's Medical School, where he focuses on infectious and parasitic diseases. Dr. Sader also serves as Coordinator for the SENTRY Antimicrobial Resistance Surveillance Program for the region. Initial members of APUA-Brazil include representatives from academia, industry and various medical centers, with backgrounds in pediatrics, microbiology, surgery, infection control, and pharmacy.

**APUA-Italy and APUA-Spain** initiated an APUA symposium in Madrid, Spain, on May 9, 2000, during the 3rd European Congress of Chemotherapy. The title of the symposium, co-chaired by Dr. Fernando Baquero, President of APUA-Spain, and APUA's President Dr. Stuart B. Levy, was "Antibiotic Use and Antibiotic Resistance: Patterns, Surveillance and Control Mechanisms in Selected European Countries." The topics included the availability of data on the total amount of antibiotics used, the origin of the data, the existence of recognizable regional patterns of antibiotic consumption or socioeconomic differences in prescription availability, the existence of surveillance system or official guidelines and the transmission of this information to



Dr. Giuseppe Cornaglia and Dr. Fernando Baquero, APUA Chapter Leaders from Spain and Italy.

doctors and public. The panel included four APUA Chapter Leaders: Leonid Stratchounski (**APUA-Russia**), Fernando Baquero (**APUA-Spain**), Helene Giamarellou (**APUA-Greece**), and Giuseppe Cornaglia (**APUA-Italy**).

A similar symposium is proposed for the forthcoming ICC (International Congress of Chemotherapy) in Amsterdam, The Netherlands, from June 30 to July 3, 2001. Dr. Anibal Sosa, Director of the APUA Latin America Initiative, will participate in the symposium. APUA-Italy and APUA-Spain also sponsored a joint meeting on the proper use of antibiotics for outpatient care last summer in Sardinia attended by microbiology, infectious disease, and public health professionals from Italy and Spain. A second meeting cosponsored by the Italy and Spain chapters is scheduled for 2001 in Barcelona, Spain.

**APUA-Ukraine** Chapter Leader, Igor Bereznyakov, invites you to visit their new website at [uadva.nav.to](http://uadva.nav.to).

**APUA-Bulgaria** Chapter Leader, Emma Keuleyan, reports that the Ministry of Health has created an Expert Committee on Antibiotic Policy to standardize the work of the clinical microbiology laboratories, to establish a national antimicrobial resistance surveillance system, and to elaborate a National Antibiotic Policy. Dr. Keuleyan will serve on the committee along with other microbiologists, clinicians and pharmacologists.

The **APUA-Greece** chapter, the Hellenic Society of Chemotherapy and the Hellenic Society for Infectious Diseases organized a meeting in conjunction with the Fifth Panhellenic Congress of Infectious Diseases on February 2, 2001. Chapter leader, Helen Giamarellou, MD, PhD, spoke on antibiotics in animal husbandry, Professor Otto Cars (**APUA-Sweden**) discussed the prudent use of antibiotics in the community, highlighting the STRAMMA experience, and Professor Ian Gould (APUA member from Scotland) discussed how microbiology laboratories facilitate the prudent use of antibiotics by physicians.

**APUA-Greece** is collaborating with the Greek National Food and Drug Administration in their campaign for the prudent use of antibiotics in the community. During December, three public service announcements were produced and aired for no charge at least three times by 25 television channels.

## Public Policy Notes

The 106<sup>th</sup> US Congress appropriated \$30 million for "antibiotic resistance and surveillance" through the USAID Infectious Diseases Initiative and \$25 million for the establishment of partnerships between the Center for Disease Control and academic institutions and state and local public health departments to carry out pilot programs for surveillance, education, and prevention, and conduct research on resistance mechanisms and new compounds.

The FDA issued a proposed rule on labeling requirements for systemic antibacterial drug products intended for human use. The proposal is intended to encourage physicians to prescribe more judiciously and counsel their patients about the proper use.

FDA's Center for Veterinary Medicine (CVM) proposes to withdraw poultry fluoroquinolones approval on the grounds that new evidence shows the product has not been shown to be safe. The affected drugs are enrofloxacin (Bayer Corporation) and sarafloxacin hydrochloride (Abbott Laboratories).

APUA supports the FDA proposal.

The Federal Interagency Task Force on Antimicrobial Resistance continues to finalize its action plan.

On January 11-12, 2001, APUA President Stuart B. Levy, Vice President Tom O'Brien, and Executive Director Kathy Young, participated in WHO's meeting on the international aspects of its draft Global Strategy for Containment of Antibiotic Resistance. The Global Strategy will be submitted to the World Health Assembly in May.

For more information on many of these issues, see [www.apua.org](http://www.apua.org).

**Alliance for the Prudent Use of Antibiotics**  
**75 Kneeland Street**  
**Boston, MA 02111-1901 USA**

If you are concerned about the public health threat of antibiotic resistance, become part of the solution. Make a tax-deductible contribution and join our global network of citizens, clinicians, researchers and policy makers.

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**APUA**  
ALLIANCE FOR THE PRUDENT USE OF ANTIBIOTICS

**... preserving the power of antibiotics throughout the world.**

The Alliance for the Prudent Use of Antibiotics is a non-profit organization dedicated exclusively to curbing antibiotic resistance and improving the use of antibiotics throughout the world. Founded in 1981 as a global grassroots organization, APUA's mission is to improve public health through education and research concerning antibiotic use and resistance. With members in over 100 countries and numerous foreign affiliated chapters, APUA provides a unique network to support country-based activities and facilitate international communication and planning.

APUA's resources include an international scientific advisory board with members of national academies of medicine and science, and a professional staff with specialized expertise. APUA's global network of affiliated chapters serves to tailor interventions to local customs and practices.



★ Headquarters

● Chapters: Argentina, Australia, Bangladesh, Belarus, Brazil, Bulgaria, Chile, China, Colombia, Cuba, Dominican Republic, Ecuador, Greece, Guatemala, India, Italy, Mexico, Moldova, Nepal, Russia, Senegal, Spain, Sweden, Turkey, Ukraine, Uruguay, Venezuela and Vietnam.

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