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> Research into action

# Research “essential” to tobacco control treaty...

## ...and more is needed, as smoking deaths will double to 10 million a year by 2020

**SUMMARY**  
Controlling the world’s second biggest killer – tobacco – is impossible without sound research, says WHO.

**GENEVA:** Research was “essential” to WHO’s groundbreaking Framework Convention on Tobacco Control, which entered into force this month (27 February 2005) in 40 of the 57 countries, representing 2.3 billion people, that have now ratified it. So **Vera Luiza da Costa e Silva**, Director of WHO’s Tobacco Free Initiative, told *RealHealthNews*.

“We are so pleased you can’t imagine!” she said – but “we are at the bottom



line... We still have lots to do and the member states have to consider going beyond the provisions of the treaty.”

Da Costa e Silva, a Brazilian epidemiologist whose own work on tobacco

informed Brazil’s leadership of the global negotiations for the Framework Convention, explained that the Convention “is a clear example of how you translate research into action.”

“Every single provision has a research component as background” she said. “We used research not only on the burden of disease and the causes, but on the interventions, what works and doesn’t work”. And economic studies were also crucial, such as those reported in the World Bank publication *Curbing the Epidemic*.

However, the Convention is only the crucial first political step in the control of [continuing on page 2 >](#)

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## GENE CUTS TOBACCO DEPENDENCE 14-FOLD

### Brazilian researchers find protective new variant of nicotine metabolizing enzyme

**RIO DE JANEIRO:** An active variant (or 'allele') of a key enzyme in the removal of nicotine from the body, CYP2A6 (polymorphic cytochrome P450 2a6), has been found to reduced some people's risk of becoming a regular smoker fourteenfold, Brazilian biologists have discovered.

One of the authors of the recent report published in *The Pharmacogenomics Journal* – cancer researcher Guilherme Suarez Kurz of the Brazilian Academy of Sciences – told *RealHealthNews* “Our finding was unexpected – because this allele 1B still removes nicotine. So we can't explain our results in the way the other data are explained.”

Rachel Tyndale of the University of Toronto in Canada and others had previously shown that other alleles of CYP2A6, which fail to remove nicotine, protect against dependence, perhaps because they make the first experience of smoking unpleasant. But the Brazilian allele 1B is still active “so we can't explain our results that way” said Suarez Kurz.

Another mystery is that the 14-fold protective effect of allele 1B only applies to Brazilians who report themselves to be “white”. The effect in self-reported “intermediates” is to reduce the risk of dependence by only a factor of four, while in self-reported “blacks” it has no effect.

Therefore “it may be just a marker” Kurz hypothesises. Other genetic changes may be in linkage disequilibrium with this gene in what is an ethnically very mixed population in Brazil, he said, “and they may be the culprit”. His team is now hunting for such genes.

Kurz bemoaned the lack of related research in Africa. “It's amazing there are no data on any of these CYP2A6 alleles in Africans” he said. “All the data is on African-Americans who have 20-30% of their genes of European origin.” **RW** ■

> smoking, which is increasing rapidly in the developing world. If current trends continue, a projected seven million out of the ten million deaths due to tobacco in 2020 will occur in the developing world, according to WHO. Currently tobacco kills five million people a year, and is the world's second leading cause of death, after cardiovascular disease, which kills 17 million a year.

Despite the immense challenges in creating the treaty against pressure from the tobacco lobby, and the government income from sales and taxes, the measures now entering into force have been shown to reduce smoking prevalence by only 1% a year. Taking into account the increasing global population, they will not begin to reduce total demand for tobacco for 20-30 years, Da Costa e Silva told *RealHealthNews*.

To move forward, she said, “We need research in the product regulation area; we need to know more about harm reduction, and risk reduction; we need to know more about the composition of cigarettes and what further impacts they have on health; and we need more research on the tobacco-growing areas, for alternative crops, and the impact of the tobacco crop on the health of tobacco growers.” **RW** ■

## READ ON

### Current status and text of the Framework Convention on Tobacco Control

<http://www.who.int/tobacco/framework/countrylist/en/>

### Tobacco Free Initiative

<http://www.who.int/tobacco/en/>

## > Health Research Funding

# WHO petitioned to launch medical R&D treaty

## 162 scientists and politicians propose a radical new model for global pharmaceutical research

### SUMMARY

Global support is building for governments to accept – and trade in – obligations to support medical research focussed on world problems.

**WASHINGTON, DC:** Imagine a world in which health research and development were funded by global need, rather than market profit – in which patents were no longer necessary and all research was open and shared.

A dream? Well not according to the high-level expert and political signato-

ries to a new petition to WHO delivered this month (24 February 2005), which not only calls for just that, but proposes a precise Kyoto-style treaty mechanism with which to get there.

The scheme has been built on the model of the Human Genome Project by Wellcome Trust Sanger Centre and genome scientist Tim Hubbard, and Jamie Love, Director of the Consumer Project on Technology in Washington, DC.

But what about the companies that dominate the world market for pharmaceuticals – so-called ‘Big Pharma’ – who claim it costs US\$0.5-1.0 billion to devel-

op a new medical product, and say those sums can only be recouped through the global patent system reinforced by the World Trade Organization's TRIPS agreement, which recently came into full force? Does this treaty not challenge the pharmaceutical business head-on, thus generating enormous opposition?

Love, whose passion together with his political and economic savvy has driven the project closer to reality, told *RealHealthNews* "People whose livelihood depends on developing new drugs should do very well with this treaty. It's designed to increase the amount that goes into R & D, not decrease it. But if basically your activity is in the marketing end of things, it may not bode well for you. So it a little bit depends on what you do for a living."

"I think for small firms, which are much longer on the inventive side than the marketing side, this is actually a positive proposal" said Love.

Moreover, the signatories to the petition delivered to WHO's Commission on Intellectual Property Rights, Innovation and Public Health are "not just NGOs" said Love. The 162 names include representatives of the governments of Chile and Brazil, eight members of the European Parliament, the chairman of the UK parliament's Select Committee on Science and Technology, and a US Congressman. "And we expect to pick up more" said Love. The treaty calls for countries to devote a precise fraction of their GDP to globally defined health research priorities – and allows great flexibility, by allowing the 'trading' of research obligations internationally, like carbon trading under the Kyoto agreement on global warming.

Love told it was hoped either to place the treaty proposal before the coming (May 2005) World Health Assembly, or the WHO Executive Board in January 2006. **RW** ■

## READ ON

**The R&D treaty petition and signatories**  
<http://www.who.int/intellectualproperty/submissions/en/CPTech.pdf>

## > Health Systems Science

# Villagers can cut the rising cost of malaria

## New technologies can cut budgets where malaria is resistant to chloroquine

### SUMMARY

Big savings can be made if villagers are trained to reduce malaria over-diagnosis, using antibody-based rapid diagnostic tests.

**AFRICA:** Malaria is over-diagnosed in Africa by an 25%-95%, Liverpool School of Tropical Medicine's Guy Barnish told *RealHealthNews*, while the costs of treatment in chloroquine-resistant areas are going up 20-30-fold. So if that over-diagnosis could be lowered, great savings could be made – and there's a way to do it, if a little science could be brought to villagers.

In October 2005 Barnish rapporteured a WHO expert meeting on the problem, and while his report is yet to be published, delayed by the response to the Asian tsunami, he told *RealHealthNews* the meeting's main conclusions.

"WHO advised many years ago that everyone with a fever should be treated with an antimalarial – chloroquine, which was safe, effective and cheap... It was a good policy in those days. A great thing about chloroquine was that it was antipyretic, so if someone came in with a headache and fever it got rid of it even if it wasn't malaria" said Barnish.

But with the rise of resistance to chloroquine malaria must now be treated with artemisinin combination therapies (ACTs), such as Novartis' Coartem at US\$2.40 per adult, or 90 UScents per child – the lowest price that could be negotiated by WHO – 20-30 times the price of chloroquine.

Meanwhile studies showed that an average of 61% of clinically defined "malaria" cases in Africa were not malaria at all, said Barnish.

So I tried assiduously to find predictors of malaria from the signs and symptoms that people in clinics can recognize, without the use of a laboratory - a diagnostic algorithm" said Barnish. "But the trouble is a lot of the signs and symptoms of malaria mimic those of other infections, so we failed, and so has everyone else. It's just not possible."

But now there are antigen detection tests. "You put a fingerprick blood sample, a measured volume with a micropipette, on this little strip of nitrocellulose... and if the patient has malaria you get two pink lines."

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## READ ON

**The UK's Malaria Knowledge Programme is turning research results into policy guidelines. See:**

<http://www.liv.ac.uk/Istm/majorprogs/malaria/outputs.htm>

**One of these policy guidelines concerns the issues involved in improving laboratory facilities at the periphery, including malaria diagnosis:**

<http://www.liv.ac.uk/Istm/majorprogs/malaria/documents/Labdiagnosis.pdf>

**Malaria misdiagnosis: effects on the poor and vulnerable: Mark Amexo, Rachel Tolhurst, Guy Barnish, Imelda Bates: *The Lancet*, 2004, Vol 364, pages 1896-98:**

[http://pdf.thelancet.com/pdfdownload?uid=llan.364.9448.review\\_and\\_opinion.31261.1&amp;x=x.pdf](http://pdf.thelancet.com/pdfdownload?uid=llan.364.9448.review_and_opinion.31261.1&amp;x=x.pdf)

> “You can train community village volunteers to do this test” said Barnet, and in combination with defining some clinical symptoms – the most predictive of which is a mother coming in and saying her child’s body is getting hot – before the test is given, you have a cost-

effective diagnosis. “If you can motivate these people – and you can! – this works” said Barnish. “I find if you go to health centres, and go back a second time, and then a third time, the whole attitude changes. They say ‘ah you’ve come back, people usually don’t!’

Then you start getting them interested and they respond to you. So there is a way to do it. The Cambodians have done it. It’s been done in Tanzania. And it can be done in the rest of the world too.” **RW** ■

## > Profile

# Chinese neurologist “straddles two boats”

### SUMMARY

China has begun to encourage top ex-patriot scientists to come home. Bringing US\$1 million of equipment with him from the US, Xiao Chuanguo was one of the first. But he keeps a post in the West.

### > by Jie Gao

**WUHAN, CHINA:** The career of Xiao Chuanguo, now Director of the Institute of Urology at Tongji Medical College, Huazhong University of Science and Technology, Wuhan, was made in a disaster.

At 3:42 am on July 28, 1976, a magnitude 7.8 earthquake hit the sleeping city of Tangshan, in northeastern China. As a young doctor who just graduated from Hubei Medical College, Xiao participated in the Tangshan earthquake rescue work. And he witnessed many earthquake survivors, paraplegic after spinal cord injury and in agony at being unable to micturate (pass urine). This incident left Xiao with unforgettable memories – which motivated him to solve the problem.

Moving to the UK and then the US, he worked on the problem in animal experiments, and showed the potential to create a somatic-autonomic reflex arc, so patients might be able to micturate by scratching.

Then Xiao heard from Chinese urology experts visiting the US about the many Chinese miners left paraplegic by the frequent mine accidents in China. He began to feel the call to come home.

In 1995, in very restricted conditions, Xiao began operations on paraplegic miners at the Pingding Mountain Mine. They succeeded, and by now over 170 patients in all walks of life have regained bladder control after receiving Xiao’s nerve regeneration surgery.

Xiao’s surgery connects the somatic and autonomic nervous systems, and may have broad biological and clinical significance.

Xiao formally returned to China in 1997. Chen Mingzhang, then Minister of Health, invited him back, offering RMB 500 000 (US\$ 62 500) as a research start-up fund. And with the approval of the US National Institutes of Health, he also took along with him his complete laboratory, worth US\$1 million, in a shipping container – and paid the shipment fee himself.

Appointed Professor and Chairman of the Urology Department Tongji Medical College, he was encouraged by the College to take concurrent posts abroad. So Xiao has continued to serve as a Principal Investigator at the Departments of Urology and Neurosurgery of the New York University School of Medicine.

This policy, allowing expatriate scientists to “straddle two boats at the same time” (in the Chi-

nese idiom) helps Xiao retain his place in international research. He travels back and forth frequently, and is a sought-after researcher and surgeon in both countries.

Compared with research facilities in the US, those in China are still inferior, Xiao told *RealHealthNews*. But Xiao has finally realized his dream of using his own knowledge to make contributions to his country – and with the help of scientists like him Chinese research is improving fast. ■

### READ ON

This and other interviews and stories will be reported in full on the *RealHealthNews* pages at the Global Forum website: <http://www.globalforumhealth.org>

Basic science funding to double in China: <http://www.scidev.net/News/index.cfm?fuseaction=printarticle&itemid=1841&language=1>

### Further information:

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